

TO:

Select Committee on Personal Choice and Community Safety
Legislative Council
Parliament House
4 Harvest Terrace
West Perth WA 6005

FROM:

Chris Gillham

**Submission to the Select Committee on Personal Choice and Community Safety -
Legislative Council**

This submission to the Select Committee on Personal Choice and Community Safety entirely concerns the reference to mandatory bicycle helmet laws.

I am a Perth-based, 57 year old research journalist who began investigating the impact of the Western Australia helmet law in the mid 1990s when the State Government first released cycling survey and hospital admission data that showed a sharp decline in participation but no decrease in cyclist injuries.

Since then, this result of fewer cyclists but more accidents/injuries per cyclist has been persistent in WA and in all Australian and overseas jurisdictions that have enforced mandatory helmet laws.

I maintain one of the world's first and most cited websites presenting analysis of the helmet law ¹ and this submission summarises major points on that website.

During parliamentary debate about the establishment of this select committee, MPs on several occasions noted that individual freedoms must sometimes be sacrificed for the greater good of the community due to the emotional and financial cost for others, including taxpayers, in the event of death, injury or long-term disability.

This submission provides empirical evidence that WA's bicycle helmet law has discouraged cycling participation with consequent impacts on long-term public health, traffic congestion and pollution. These are costs to the community that are not immediately apparent through television footage of crash victims or academics and surgeons in the media who insist that cyclists will die or be permanently disabled if they ride without a helmet.

The data show enforcement of WA's mandatory bicycle helmet law since July 1992 resulted in no reduction in the proportion of cyclist head injuries and a substantial increase in total cyclist injuries.

Committee members should recognise that within the obesity crisis that has developed over the past 20 years, there is a significant economic cost to be borne by taxpayers when hundreds of thousands of Australians are discouraged from cycling because of helmet laws - many instead driving cars which impact traffic congestion and the safety of all road users including motorists, pedestrians and cyclists.

Western Australia cycling participation

The first evidence regarding the influence of helmet laws on WA cycling participation levels can be found in surveys that started on Perth's Narrows and Causeway bridges in October 1991, nine months prior to helmet law enforcement.

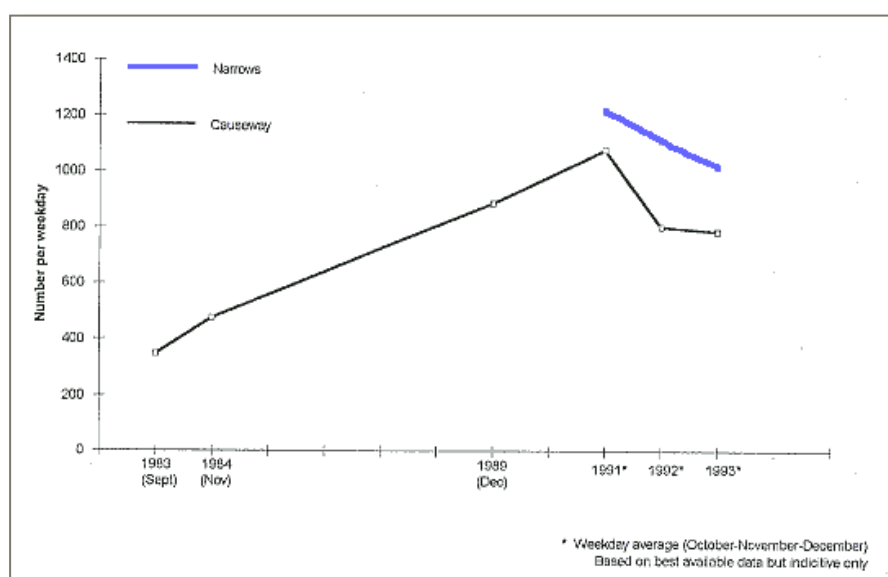
A significant majority of weekday cyclists on these bridges are work commuters and Main Roads WA surveys show an approximate 30% decline by 1996.

For example, on the Narrows Bridge between October 1991 and June 1992, an average 1,065 cyclists were counted on weekdays. From October 1995 to June 1996, an average 767 cyclists were counted on weekdays. This is a 28.0% reduction in participation.

On the Causeway Bridge between October 1991 and June 1992, an average 957 cyclists were counted on weekdays. From October 1995 to June 1996, an average 655 cyclists were counted on weekdays. This is a 31.6% reduction in participation.

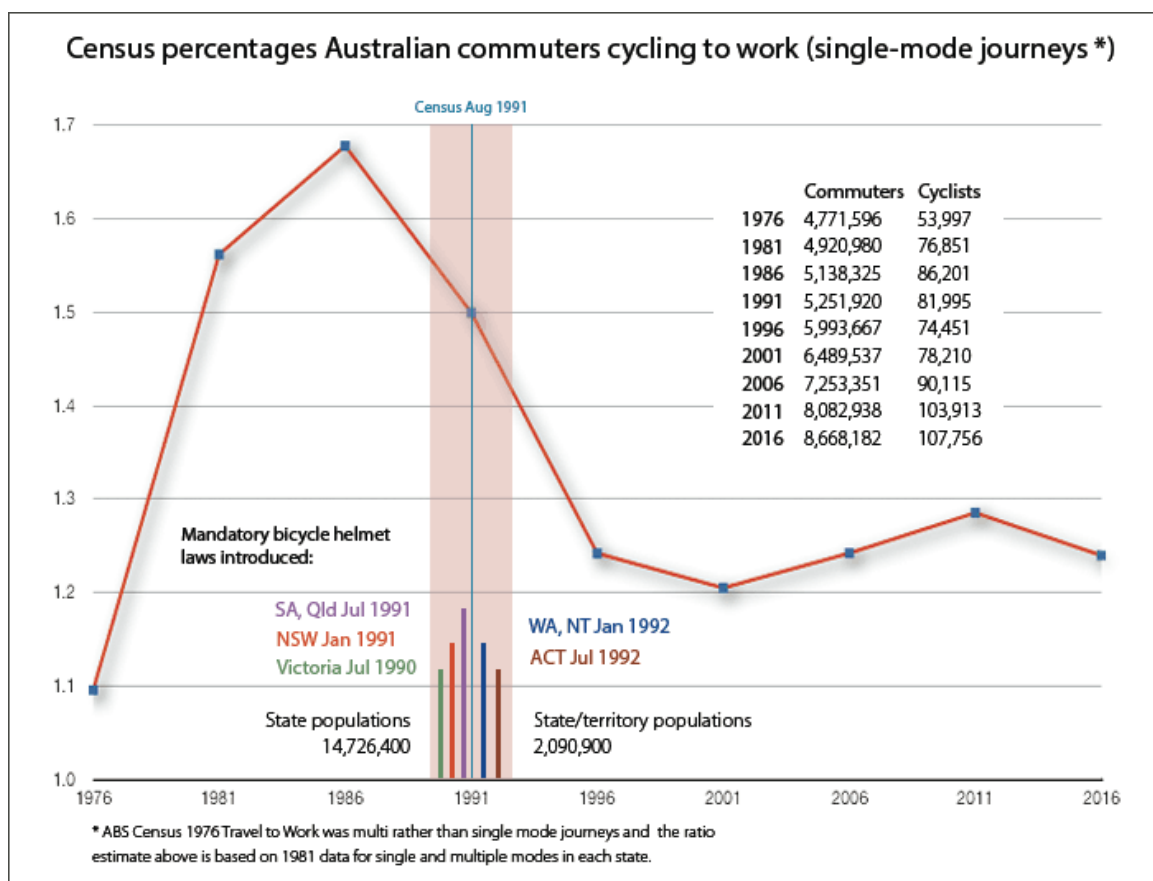
The two bridges combined show a 29.3% reduction in cyclist numbers from 1991 to 1996, despite 9.6% Perth population growth from 1991 to 1996 (1,226,115 > 1,343,355).

Below is a chart prepared by Main Roads WA showing the immediate post law decline in numbers following a decade of growth estimated by the department to average 10% per annum.



Albeit influenced by on-site and surrounding infrastructure works during the intervening years, as well as substantial growth in Perth's CBD business and residential populations, the Main Roads WA survey data show that from October 2005 to June 2006 the average number of cyclists crossing these two river bridges on weekdays was 1,080. This was 6.8% more than the 1991/92 average of 1,011. However, Perth's population growth from 1991 to 2006 was 28.6% (1,226,115 > 1,576,912).

The helmet law influence on commuter work cycling was long-term and national, as evident from the chart below based on Census data collected by the Australian Bureau of Statistics.



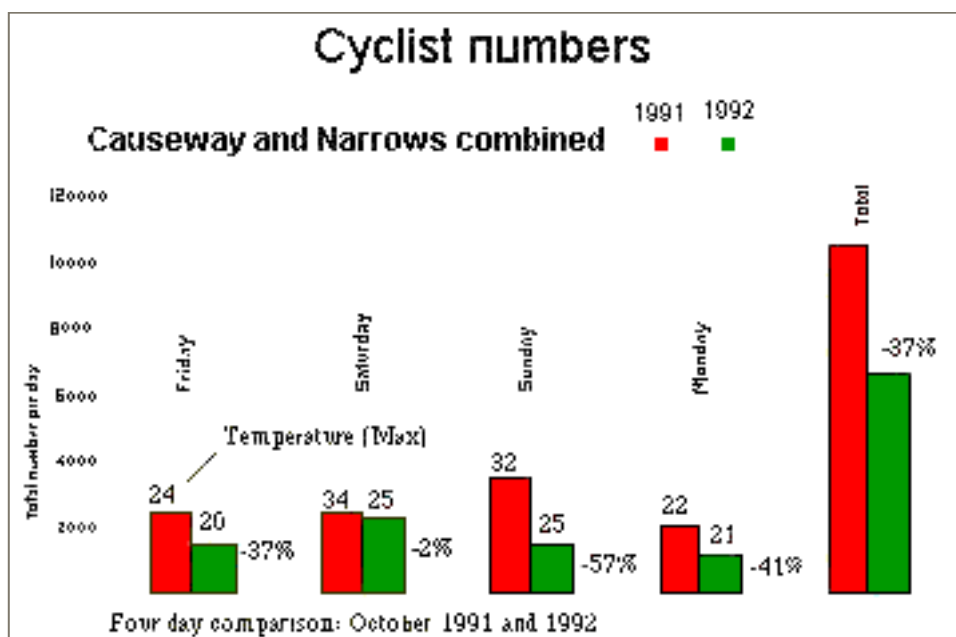
ABS Census data show WA commuter cycling increased from 1.48% in 1981 to 1.85% in 1991, but fell to 1.2% by 1996.

The helmet law impact on recreational cycling was more severe, as seen in weekend cyclist numbers counted by Main Roads WA on the Narrows and Causeway bridges.

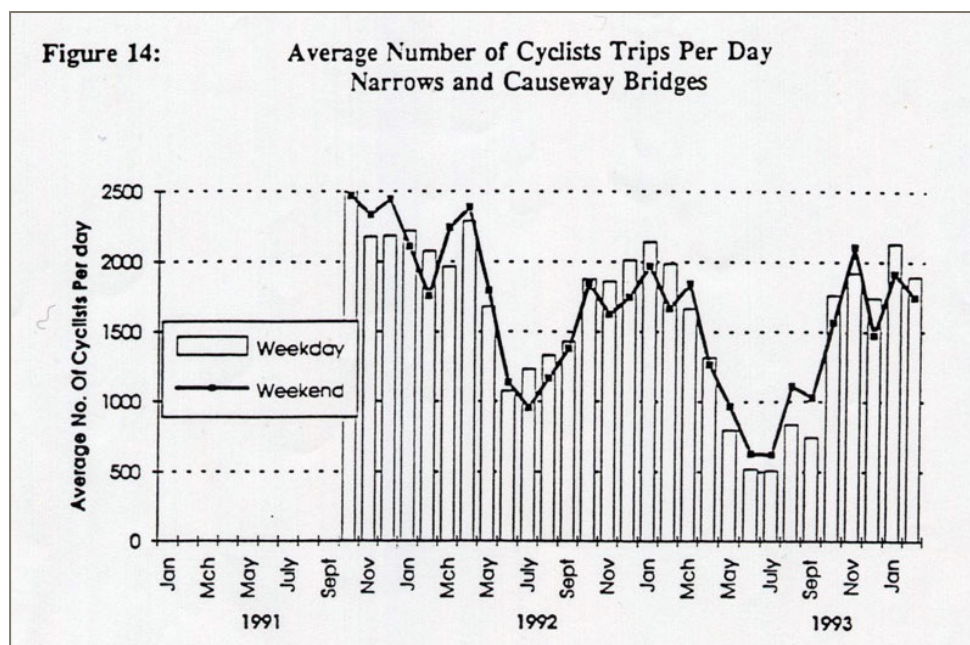
In December 1991, 11,406 bikes were counted on the Narrows on weekends. In December 1992, it was down to 4,526. By December 1993, it was 6,507 and by December 1994 it was 6,863. This is down from an average daily count of 1,267 in December 1991 to an average of 762 in December 1994 ... a reduction of approximately 40%.

In December 1991, 10,596 bikes were counted on the Causeway on weekends. In December 1992, it was down to 6,719. By December 1993, it had fallen to 5,295. By December 1994, it was down to 4,564. This is down from an average daily count of 1,177 for weekends in December 1991 to an average of 507 in December 1994 ... a reduction of approximately 57%.

Similar proportions are evident in the chart below produced by Main Roads WA counting cyclist numbers over four days in October 1991 compared to October 1992.



The chart below is extracted from *Report on Compulsory Helmet Wearing for Bicyclists, and Other Bicycling Issues* published in 1994 by the Legislative Council Select Committee on Road Safety.



The preceding data establishes that WA's mandatory bicycle helmet law enforcement in July 1992 had an immediate and significant impact on cycling participation. The long term impact is worse, and survey data in recent years is sharply at odds with a widespread public misconception that cyclist numbers have been increasing.

Australia's National Cycling Participation surveys ² show the population proportion (aged 2+) of West Australians who cycle at least once per week declined from 23.1% in 2011 to 18.5% in 2017. As a population proportion, this 4.6% reduction represents 114,490 fewer cyclists.

The NCP surveys show the population proportion (aged 2+) of West Australians who cycle at least once per month declined from 31.0% in 2011 to 24.8% in 2017. This 6.2% reduction represents 154,312 fewer cyclists.

The NCP surveys show the population proportion (aged 2+) of West Australians who cycle at least once per year declined from 45.1% in 2011 to 41.9% in 2017. This 3.2% reduction represents 79,645 fewer cyclists.

The NCP surveys show the average number of hours ridden in the past week by participating West Australians fell 11.6% from 3.10 hours in 2011 to 2.74 hours in 2017.

Committee members from electorates outside Perth should note the NCP surveys reveal declines in both city and regional cycling at least once per week, month and year since 2011 (*also see submission addendum for regional committee members*):

Perth - 2011 weekly 23.3%, 2017 weekly 17.8% / 2011 monthly 31.0%, 2017 monthly 24.0% / 2011 yearly 45.2%, 2017 yearly 42.1%.

Regional WA - 2011 weekly 22.6%, 2017 weekly 20.6% / 2011 monthly 31.1%, 2017 monthly 27.4% / 2011 yearly 44.9%, 2017 yearly 41.1%.

The NCP estimates of a decline in WA cycling since 2011 are supported by Department of Transport surveys showing an average annual 7% decline in all day cycling traffic into and out of the Perth CBD in 2015, 2016 and 2017 (21% from 2015 to 2017) ³.

A rough estimate of the number of West Australians cycling each day prior to helmet law enforcement can be gleaned from the CR69 *Day to Day Travel in Australia* survey ⁴ conducted by the ABS in 1985-86. These figures suggest 182,900 West Australian aged 9+ cycled per day in 1985-86.

The NCP data can be roughly estimated to show 133,541 West Australians aged 9+ cycled each day in 2017, a 27.0% reduction on the 1985-86 CR69 estimate by the ABS. WA's population aged 9+ increased 84.9% from June 1985 to June 2016.

Academics supporting bike helmet laws acknowledge that their mandatory use reduced child cycling across Australia, although they are reluctant to concede similar reductions in adult cycling participation.

The number of Australian children walking or cycling to school has fallen from about 80% in 1977 to current levels around 5% ⁵.

The following media release published by Bikewest notes that from 1991 to 1995, the reduction in children cycling to school was greater than 50%, increasing their road injury risk from the increased number of cars near schools:

NEWS RELEASE

Embargoed until 5am
Tuesday March 19 1996

MOTORIST ALERT AS THOUSANDS CYCLE TO SCHOOL

Motorists are urged to watch out for children on bicycles this morning as thousands cycle to school for Bikewest.

Schoolchildren throughout the State will ride to school in a Bikewest competition designed to encourage more children into cycling every day.

More than 30 schools and 2000 schoolchildren are expected to take part.

Bikewest coordinator Jim Krynen said the competition aimed to turn the tide on the declining number of children cycling to school.

"In the past five years the number of schoolchildren cycling to school has more than halved," Mr Krynen said.

"The result of this decline is an increased traffic flow around schools as parents drive their children, which puts children's lives at risk."

Mr Krynen said parents could cycle to school with their children as an alternative to driving.

Computer equipment worth \$500 is up for grabs for schools in the Bikewest competition - four schools with the highest percentage of bike riders win.

Bikewest, coordinated by Bikewest, Department of Transport, runs until March 24 with leisure and sporting events promoting cycling for health, economic and environmental benefits.

For further information about the competition or Bikewest contact Jim Krynen on 430 7550.

The following table and chart are extracted from *Bicyclist Helmet Wearing in Western Australia : A 1993 Review* by B. Heathcote for the WA Police Department:

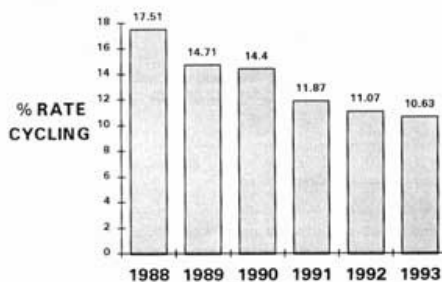
TABLE 7. Rate of Children Observed Riding to or from School

CYCLING RATE	1986	1987	1988	1989	1990	1991	1992	1993
METRO PRIMARY SCHOOLS	13.6	14.2	15.1	13.1	9.9	10.9	8.8	9.4
COUNTRY PRIMARY SCHOOLS			14.6	9.2	12.3	8.9	8.9	9.3
METRO HIGH SCHOOLS	23.7	29.3	33.4	27.2	26.6	20.9	18.5	15.0
COUNTRY HIGH SCHOOLS			9.9	13.2	11.8	8.9*	9.8	9.6
OVERALL RATE %	18.2 %*	20.9 %*	17.5 %	14.7 %	14.4 %	11.9 %	11.1 %	10.6 %

* Denotes metropolitan rate only, figures not used in the following graph.

N.B. The overall percentage rate is determined from raw data.

GRAPH 1.
OVERALL RATE OF SCHOOLCHILDREN WHO CYCLE TO OR FROM SCHOOL



Surveys since the early 1990s have consistently shown an ongoing increase in the age of Australian cyclists. In other words, a significant proportion of the baby boomer demographic bulge who grew up learning to cycle without helmets, adapted to the law and continued cycling while wearing a helmet.

Many children and teenagers were discouraged. Since 1992 those youngsters have matured to become young and middle aged adults with little interest in cycling. The baby boomer demographic, in the meantime, has become elderly with an increasing number abandoning their bicycles due to their ageing frailty - as reflected in the declining NCP survey numbers.

This demographic shift is also noted by the 2017 NCP survey authors who predict an ongoing decline in cycling participation: *"Moreover, it is likely that the gradual ageing of the Australian population has contributed to the participation trend, and this demographic shift is likely to exacerbate the challenge of increasing cycling participation in future as the population continues to age. The strong correlation between age and cycling participation means that over time we would expect cycling participation to decline without significant policy intervention or natural cultural shifts."*

The appropriate policy intervention would be repeal of mandatory helmet laws that punish people for getting out of their cars and riding bicycles the way they wish to.

Western Australia cycling injuries

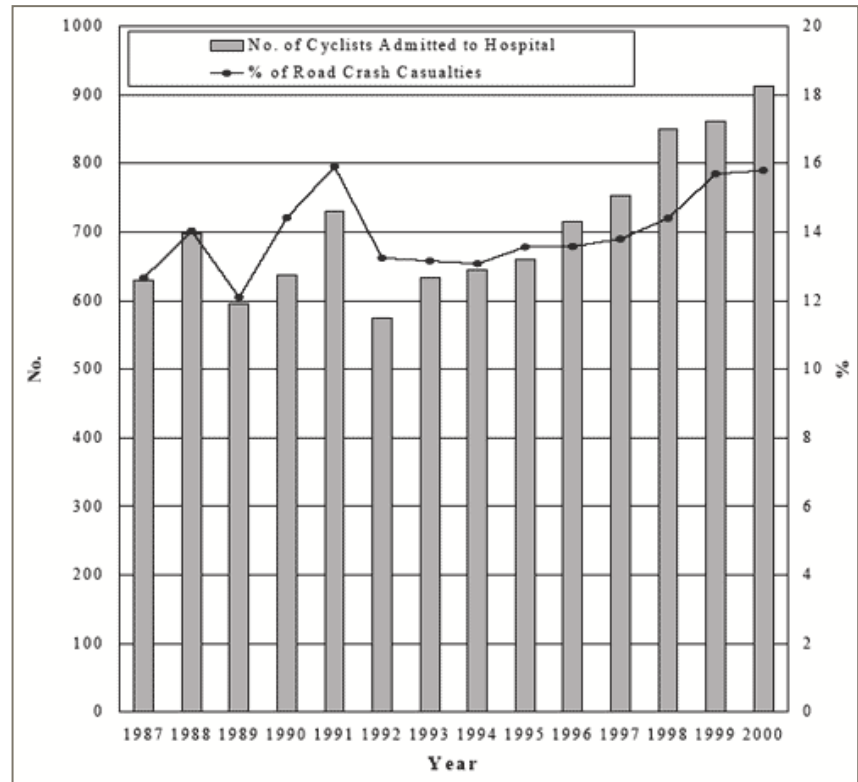
The decline in numbers and percentage of West Australians cycling could reasonably be expected to result in a correlating decrease in the numbers who are injured, particularly as a far greater proportion after 1992 have worn helmets that supposedly reduce head injuries by as much as 80%.

Prior to helmet law enforcement from 1988 to 1991, an average 665 people were admitted to WA hospitals with cycling related injuries. From 2013 to 2016, an average 1,209 people were admitted to WA hospitals with cycling related injuries. This is an 81.8% increase.

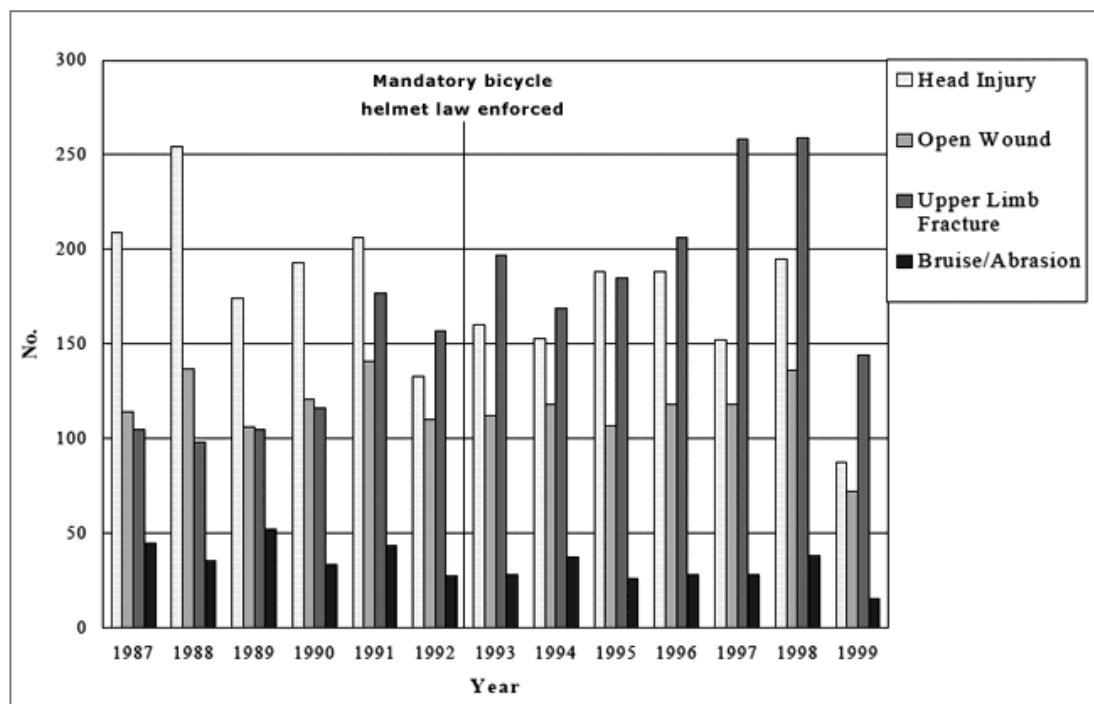
From 1988 to 1991, an average 177 people were admitted to WA hospitals with cycling related head injuries. From 2013 to 2016, an average 353 people were admitted to WA hospitals with cycling related head injuries. This is a 99.4% increase. The proportion of head injuries among all cyclist hospital admissions was 26.7% in pre-law 1988-91 and 29.2% in 2013-16.

The failure of WA's bike helmet law to reduce hospitalised cyclist injuries, despite the participation reduction, is apparent in the following chart extracted from *Bicycle Crashes and Injuries in Western Australia, 1987-2000 - Road Safety report RR131* commissioned by the Road Safety Council and published in 2003 ⁶.

1985 - 623
 1986 - 660
 1987 - 630
 1988 - 698
 1989 - 596
 1990 - 638
 1991 - 730
 1992 - 574
 1993 - 633
 1994 - 644
 1995 - 660
 1996 - 715
 1997 - 754
 1998 - 850
 1999 - 862
 2000 - 913



The chart below from RR131 ⁶ shows the injury distribution of these increasing numbers of hospitalised cyclists after 1992 helmet law enforcement, with head and upper limb fractures increasing compared to pre-law figures (note that the chart data for 1999 is based only on six rather than 12 months).



The table below details the distribution of cyclists admitted to WA hospitals by body region of injury between 1988 and 1998 ⁶ :

Injury *	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Head	222 (31.8%)	148 (24.8%)	163 (25.5%)	177 (24.2%)	116 (20.2%)	143 (22.6%)	126 (19.6%)	160 (24.2%)	147 (20.6%)	141 (18.7%)	175 (20.6%)
Upper Extremities	118 (16.9%)	133 (22.3%)	139 (21.8%)	206 (28.2%)	177 (30.8%)	216 (34.1%)	193 (30.0%)	199 (30.2%)	226 (31.6%)	274 (36.3%)	274 (32.2%)
External	133 (19.1%)	134 (22.5%)	121 (19.0%)	140 (19.2%)	91 (15.9%)	99 (15.6%)	103 (16.0%)	107 (16.2%)	114 (15.9%)	88 (11.7%)	90 (10.6%)
Lower Extremities	96 (13.8%)	91 (15.3%)	87 (13.6%)	99 (13.6%)	92 (16.0%)	87 (13.7%)	98 (15.2%)	88 (13.3%)	122 (17.1%)	107 (14.2%)	118 (13.9%)
Face	49 (7.0%)	33 (5.5%)	41 (6.4%)	41 (5.6%)	48 (8.4%)	39 (6.2%)	55 (8.5%)	48 (7.3%)	56 (7.8%)	40 (5.3%)	49 (5.8%)
Abdomen	22 (3.2%)	16 (2.7%)	19 (3.0%)	19 (2.6%)	11 (1.9%)	14 (2.2%)	19 (3.0%)	13 (2.0%)	11 (1.5%)	24 (3.2%)	25 (2.9%)
Spine	10 (1.4%)	3 (0.5%)	15 (2.4%)	14 (1.9%)	7 (1.2%)	8 (1.3%)	16 (2.5%)	7 (1.1%)	16 (2.2%)	11 (1.5%)	15 (1.8%)
Chest	5 (0.7%)	8 (1.3%)	13 (2.0%)	6 (0.8%)	13 (2.3%)	10 (1.6%)	16 (2.5%)	17 (2.6%)	13 (1.8%)	14 (1.9%)	10 (1.2%)
No Injury	43 (6.2%)	30 (5.0%)	40 (6.3%)	28 (3.8%)	19 (3.3%)	17 (2.7%)	18 (2.8%)	21 (3.2%)	10 (1.4%)	55 (7.3%)	94 (11.1%)
Total	698 (100%)	596 (100%)	638 (100%)	730 (100%)	574 (100%)	633 (100%)	644 (100%)	660 (100%)	715 (100%)	754 (100%)	850 (100%)

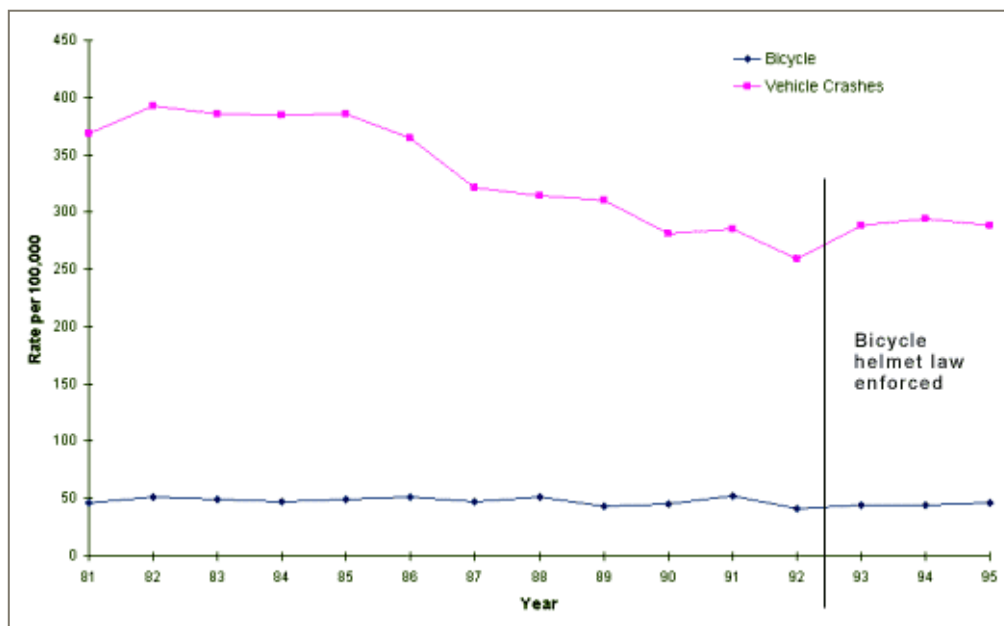
* No neck injuries because cyclists with a neck injury also sustained injury of the same severity to a higher ranking body region.

The data above show an annual average 177 head injuries during pre-law 1988-91 and an annual average 149 head injuries during post-law 1993-98. This is a 15.8% decline that compares poorly with the reduction in cycling participation exposed by the Main Roads WA river bridge surveys.

The data above show an annual average 149 upper extremity injuries during pre-law 1988-91 and an annual average 230 upper extremity injuries during post-law 1993-98. This is a 54.4% increase. Total WA cyclist injuries increased 6.6% from 665 during pre-law 1988-91 to 709 during post-law 1993-98.

The annual average 177 cyclist head injuries in 1988-91 is 26.7% of the total injury annual average of 665 during those years. WA had an annual average 353 cyclist head injuries in 2013-16, which is 29.2% of the total injury annual average of 1,209.

People discouraged from cycling by mandatory helmet laws are likely to instead drive their cars, increasing traffic density, traffic jams and accident risk to all road users. The chart below shows age-standardised rates per hundred thousand population of WA hospital admissions for injuries sustained in bicycle and vehicle crashes in the decade prior to bike helmet law enforcement and the following three years ⁷ :



The chart below shows the total number of reported road crashes in WA by year ⁶ :



These figures suggest something happened in 1992 that increased the accident and injury risk to car drivers, the most likely cause a significant increase in people abandoning their bicycles and instead driving a motor vehicle.

The table below is extracted from the Road Safety Council's *Reported Road Crashes in Western Australia 2006*⁸, and details road traffic hospitalisations rather than total hospital admissions.

Road User Group	Year							2006 Change From 5YA
	2000 ¹	2001	2002	2003	2004	2005	5YA 2001-2005	
	<i>n</i>	<i>n</i>	<i>n</i>	<i>n</i>	<i>n</i>	<i>n</i>	<i>n</i>	%
Car Driver	742	747	732	847	850	876	810.4	8.7
Car Passenger	456	511	480	467	522	465	489.0	18.2
Car Occupant Unknown	188	233	179	222	229	248	222.2	16.6
Motorcyclist	405	456	464	522	547	590	515.8	37.5
Bicyclist	234	258	301	292	358	365	314.8	22.9
Pedestrian	270	242	237	246	258	268	250.2	8.3
Other/Unknown	215	198	219	213	241	278	229.8	28.4
Total Hospital Inpatients	2,510	2,645	2,612	2,809	3,005	3,090	2,832.2	19.3

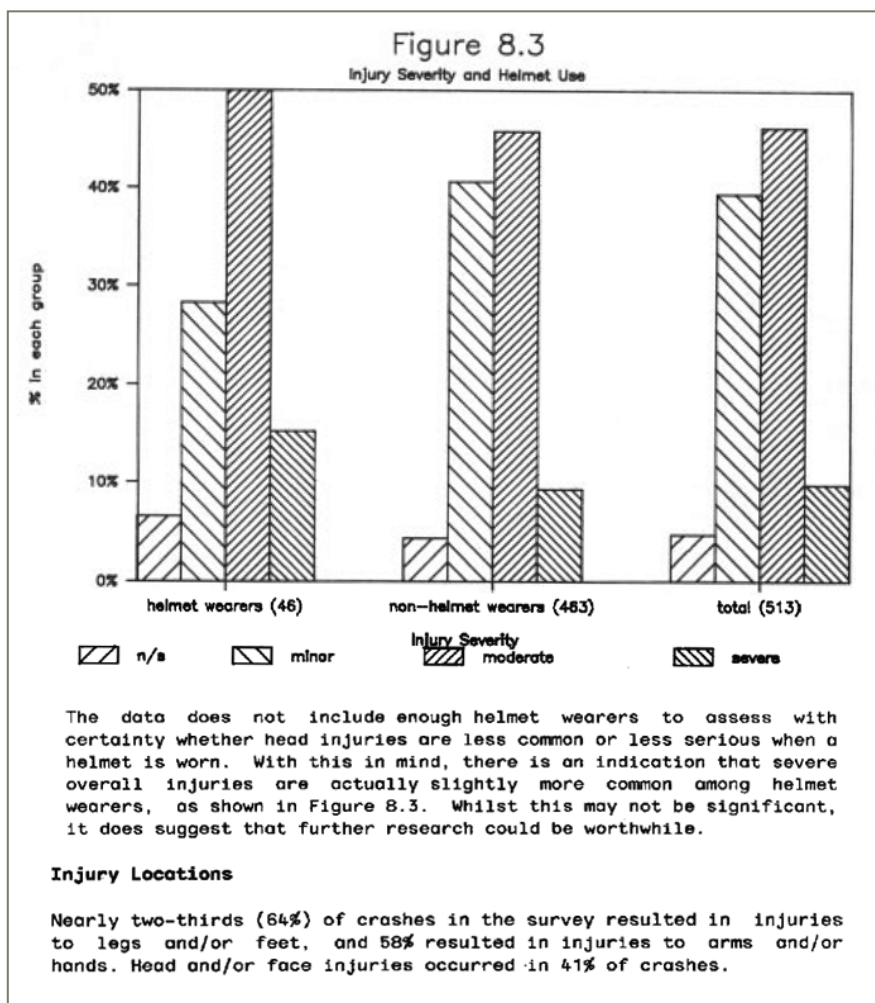
1. Data for the year 2000 has not been included in the five-year average. This data has been included due to changes that occurred in reporting hospital data where casualties of non-traffic crashes have been excluded. All historical data spanning 2000 to 2005 has been updated to reflect this change.

The table below is extracted from the Road Safety Council's *Reported Road Crashes in Western Australia 2011*⁹, and details road traffic hospitalisations rather than total hospital admissions.

Road User Group	Year						2011 Change from 2010
	2006	2007	2008	2009	2010	2011	
	<i>n</i>	<i>n</i>	<i>n</i>	<i>n</i>	<i>n</i>	<i>n</i>	%
Motor Vehicle - Driver	935	1,011	1,069	1,056	1,138	1,337	17.49
Motor Vehicle - Passenger	625	638	646	683	604	623	3.15
Motor Vehicle - Occupant-Unknown	308	308	320	317	264	273	3.41
Motor Cyclist	713	761	854	889	944	946	0.21
Pedal Cyclist	387	470	491	590	592	586	-1.01
Pedestrian	271	258	277	317	333	337	1.20
Other/Unknown	148	162	183	113	142	132	-7.04
Total Hospital Inpatients	3,387	3,608	3,840	3,965	4,017	4,234	5.40

These Road Safety Council data show that from 2000 to 2011, car driver injuries increased 80.2%, car passenger injuries increased 36.6%, motorcyclist injuries increased 133.6%, pedestrian injuries increased 24.8% and pedal cyclist injuries increased 150.4%. Cyclists represented 10.7% of all traffic injury inpatients in 2000, compared to 13.8% in 2011.

Below is extracted from *Bicycle Crashes in Western Australia 1985-86* (CR56 September 1987)¹⁰.



The WA government did no further research after 1987 before enforcing mandatory bicycle helmet laws in July 1992. Only a small proportion of WA cyclists wore helmets in 1987 but the participation and hospitalised injury data since then reinforce the CR56 finding that *"there is an indication that severe overall injuries are actually slightly more common among helmet wearers."*

Western Australia cyclist helmet wearing proportions

As accurately noted by committee member Rick Mazza: *"For a long time police were pulling up people who were not wearing bike helmets. After a while we saw people with bike helmets hanging on the handlebars and not on their heads. Eventually, the police gave up."*

As a long-time observer of helmet use by cyclists, I estimate WA police "gave up" around the year 2000, since when an increasing proportion of the few cyclists seen on our roads and bike paths have ridden without helmets. In turn, a significant proportion of cyclists counted in surveys since then have been law-breakers whose absence would mean there are even fewer people riding bicycles.

The decline in police enforcement has continued since the year 2000 and can be seen in available data showing the number of helmet infringements issued in WA since 2008:

2008 - 1,789
2009 - 2,400
2010 - 1,873
2011 - 1,066
2012 - *
2013 - 1,107
2014 - 744
2015 - 494
2016 - 507
2017 - 804

* n/a

There have been no helmet wearing road surveys in WA (or Australia) since the mid 1990s but as a rough anecdotal estimate, I contend that about 40% of WA cyclists are nowadays riding without a helmet. The proportion without helmets is greater in middle to outer suburbs of Perth and lower in inner city and inner urban areas.

For example, over the past five years I have observed a total of five cyclists of all ages in the quiet, traffic-free Balga backstreet where I live (approximately 500 metres from Balga Primary School). Among these five, three were without helmets (my 40% estimate is based on observations during car trips, most local but throughout suburbia since the year 2000).

If committee members question the accuracy of survey statistics or whether a decline in participation is due to helmet law discouragement of cycling, the proliferation of cyclists on WA roads who are willing to risk police apprehension and punishment for not wearing a helmet provides indisputable evidence of widespread community opposition to the law.

But can it be argued that the increasing numbers of cyclist total and head injuries is due to this ~40% proportion of law breakers?

Below is extracted from *Reported Road Crashes in Western Australia 2015* published by the Road Safety Commission ¹¹, and shows that among 27 WA cyclist fatalities from 2010 to 2015, 12 or 44% were not wearing helmets. This is similar to the 40% I estimate to be cycling on WA roads without helmets.

	Average 2010– 2014	2010	2011	2012	2013	2014	2015	Change 2014– 2015
	avg. n	n	n	n	n	n	n	%
Worn	3	3	1	1	4	4	2	n.p.
Not worn	2	1	3	2	2	3	1	n.p.
Total	5	4	4	3	6	8	3	n.p.

Committee members will undoubtedly receive submissions from pro-law groups claiming mandatory helmets save numerous lives, and will have read newspaper stories and web blog posts by cyclists who insist they would have died when crashing if not for their helmet.

Note that in pre-law 1987-91, there were 35 cyclist deaths in WA, or an average seven per year. In 1993-97, there were 28 cyclist deaths in WA, or an average 5.6 per year. In 2013-17, there were 29 cyclist deaths in WA, or an average 5.8 per year.

In other words and despite the significantly greater proportionate reduction in WA cycling, there is about one less annual cyclist death in WA than pre-law, giving the lie to repeated claims that WA's helmet law saves large numbers of lives.

The WA road fatality rate per 100,000 population was 12.1 in 1992 and 7.4 in 2016 ¹², demonstrating that road safety in general has improved significantly so fewer cyclist deaths would be expected. Similarly, peer reviewed research published in early 2018 shows the reduction in NSW cyclist fatalities since 1991 is attributable as much to safer overall road conditions as to that state's mandatory helmet law ¹³.

The Behaviour Change Tracking Surveys conducted by the Department of Transport Western Australia show:

- Bicycle ownership among all survey respondents dropped from 52% in March 1999 to 46% in March 2008.
- In March 1999, 10% of respondents stated an intention to purchase a bicycle and in March 2008 this was down to 4%.
- In March 1999, 36% of respondents said they had cycled at some time in the past six months, and in March 2008 this was down to 29%.
- In March 2001, compulsory helmets were among the reasons why 11% of respondents hadn't cycled in the previous six months.
- In 2008, 27 out of 89, or 30.3% of respondents said their dislike of helmets contributed to whether or not they would cycle in the next six months, compared to 25 out of 92 or 27.2% in 2007.
- The percentage of children cycling to school dropped from 7% in April 2005 to 6% in March 2008.

According to the *2006 WA Adult Physical Activity Survey* by the then Premier's Physical Activity Taskforce, the West Australian public exercises in the following ways:

Walking for recreation 68%

Walk for transport 32%

Swimming/surfing 14%

Aerobics 13%

Running/jogging 11%

Cycling for recreation 9%

Team sports 9%

Weights 8.5%


The following article was published by The West Australian newspaper on 4 September 2017 (possibly explaining why police issued 507 helmet infringements in 2016 and 804 in 2017).

4
NEWS CYCLIST SAFETY

Hard-headed

EXCLUSIVE

Gabrielle Knowles and Grant Taylor



Emergency doctors have expressed dismay at the number of WA cyclists refusing to strap on a helmet, despite figures showing they face a far higher risk of dying if involved in a serious crash.

According to the Road Safety Commission, three of the four cyclists killed on WA roads this year were not wearing a helmet.

The results are mirrored by Royal Perth Hospital's trauma registry that reveals eight of the 10 cyclists who died after being admitted to the hospital in the past five years had also failed to protect their head with a helmet.

The West Australian's photographers captured dozens of cyclists across Perth flouting WA's compulsory helmet laws last week, including eight who were spotted in just 30 minutes riding through the heart of Fremantle.

RPH State trauma director Sudhakar Rao said about 20 per cent of the cyclists admitted to the hospital each year had not been wearing a helmet.

As well as the increased risk of death, he said they were far more likely to suffer a serious and lasting brain injury, with research showing helmets decreased the risk of long-term damage by as much as 90 per cent.

"Wearing a helmet is not a big imposition, it's a very simple act," Dr Rao said.

"(People think) it does affect their hair, but you can either have ruined hair or you can have a ruined brain. I know what I'd pick."

Dr Rao also criticised Fremantle mayor Brad Pettitt, saying his calls for "no helmet zones" to be introduced within the City of Fremantle were "not helpful".

"You are less likely to get a head injury if you wear a helmet

CYCLING INJURIES
ATTENDANCES AT ALL WA HOSPITAL EMERGENCY DEPARTMENTS

	2013	2014	2015	2016	2017
				(Jan 1-Aug 31)	
Head injury	572	586	513	519	312
All cycling injuries	2995	2944	2947	2555	1656

ADMISSIONS TO ALL WA HOSPITALS

	2013	2014	2015	2016	2017
				(Jan 1 to May 31)	
Head injury	403	345	321	345	147
All cycling injuries	1297	1200	1167	1173	506

SOURCE: WA HEALTH DEPARTMENT FIGURES

INJURED CYCLISTS ADMITTED TO ROYAL PERTH HOSPITAL FOR MORE THAN 24 HOURS

Year	Total numbers	No helmet	Deaths
2012	146	33	2
2013	199	36	2
2014	217	43	3
2015	191	32	1
2016	201	32	2

SOURCE: RPH TRAUMA REGISTRY FIGURES

2017 FATAL CRASHES

March 26
74-year-old cyclist dies after falling off his bike in Geographe.
■ Was wearing a helmet.

May 3
24-year-old man dies after crashing his mountain bike into a power pole in Gooseberry Hill.
■ No helmet worn.

June 18
76-year-old man dies after being hit by a car near Pinjarra.
■ No helmet worn.

August 24
57-year-old man dies after running into the back of a stationary bus in Melville.
■ No helmet worn.

and if you do get a head injury, it's likely to be a lower-grade head injury, one that you'll recover from," he said.

"Head injuries are one of the most costly injuries for the community to bear.

"Is the City of Fremantle going to pay for the head injuries or does he (Dr Pettitt) expect taxpayers to pick up the bills."

Dr Pettitt said increasing the number of cyclists made riding safer.

"There is evidence that shows the most effective ways of getting more people on bikes is to first improve cycling infrastructure and to then relax the mandatory requirements for adults to wear helmets on cycle paths and low-speed roads," he said.

He said the Northern Territory, where helmet rules were more relaxed, had a lower injury rate of cyclists per head of population.

Road Safety Minister Michelle

Roberts said she was satisfied police were doing enough to target the issue.

Police figures show that 750 cyclists — two a day, on average — received a \$50 infringement notice last year. That was up from 529 the previous year.

But Mrs Roberts said it appeared more education was needed and she would instruct the Road Safety Commission to launch an awareness campaign to try to improve helmet compliance.

"Wearing a helmet is like wearing a seatbelt — it could save your life," she said.

Acting Road Safety Commissioner Iain Cameron said that on top of the personal trauma linked to cycling crashes, there was also a big economic cost to the community.

"Over the past five years, 2012 to 2016, the cost of crashes where cyclists have been killed or seriously injured was around \$160 million," he said.

In the article above, Royal Perth Hospital trauma director Sudhakar Rao repeats a claim he has made in previous years that *"about 20 per cent of the cyclists admitted to the hospital each year had not been wearing helmets."*

The newspaper, which has been disinterested since 1992 in publishing participation and injury evidence that questions helmet law efficacy - as contained within this submission - wrote the article above due to concerns about the evident numbers of WA cyclists who are defying the helmet law, adding weight to my estimate that around 40% are law breakers.

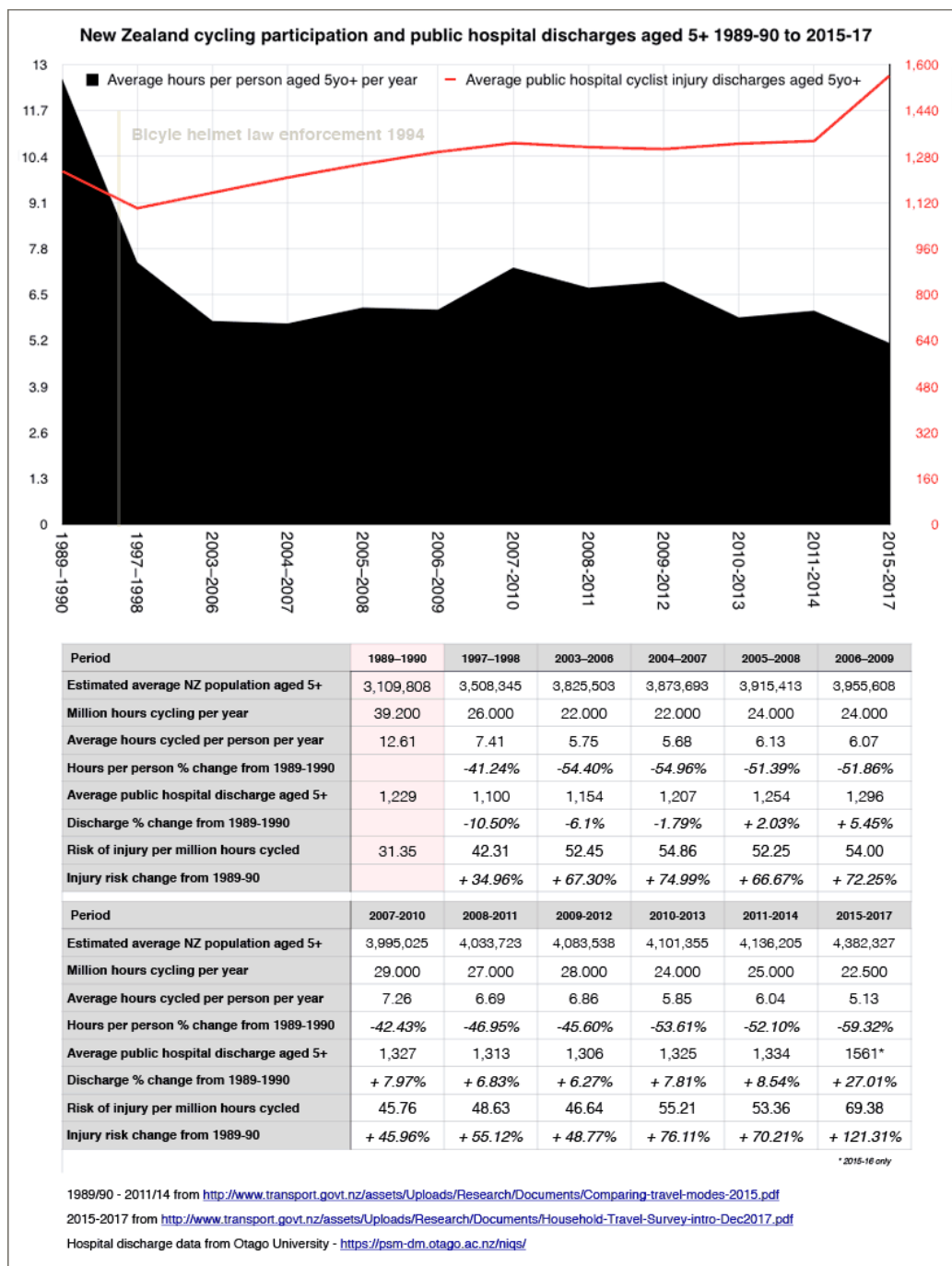
Committee members might ponder why 20% of RPH cyclist admissions since 2013 were not wearing a helmet, yet close to 40% are not wearing a helmet on WA roads and cycle paths.

New Zealand

The failure of mandatory bicycle helmet laws is not unique to WA, with similar or worse results in other Australian states and in overseas jurisdictions. It's worth considering participation and injury data from New Zealand where all age helmet laws have been enforced for 24 years.

Since enactment in 1994, New Zealand is another country with mandatory all-age bicycle helmets that the rest of the world uses as an example of why such laws should not be introduced. New Zealand enforces its helmet law more rigorously than Australia, claiming a consistent wearing rate around 93%.

Committee members should study the following analysis which includes the most recent cyclist participation and injury data from New Zealand:



According to the NZ Transport Ministry, cyclists aged 5+ collectively travelled for an average 39 million hours in 1989/90. In 2011-2014, it was 25 million hours, a 35.9% reduction despite 5+ age group population growth of 31.0% from 1991 to 2014.

In pre-law 1989/90, New Zealand youngsters aged 5-17 travelled from home to school an estimated 14.2 million times. In 2010-2014, the average was 3.2 million times.

Otago University data show there were 1,117 pedal cyclists aged 5+ discharged from public hospitals in 1991 and 1,383 in 2014, a 23.8% increase.

Like Australia, per capita cycling participation well down, despite population growth, and injury numbers up. The number of 5-17yo bike trips to school in New Zealand has progressively declined as the years have rolled by since 1994, signalling the generational discouragement that threatens to make future cycling increasingly uncommon in both countries.

Discussion

Helmet legislation was introduced by all Australian state and territory governments in 1990-92 (NT repealed adult law on public paths in 1994 and has some of Australia's best cycling participation rates) because a Senate road safety committee threatened to restrict black spot road funding for jurisdictions without such laws, not because of medical evidence that they would benefit the community.

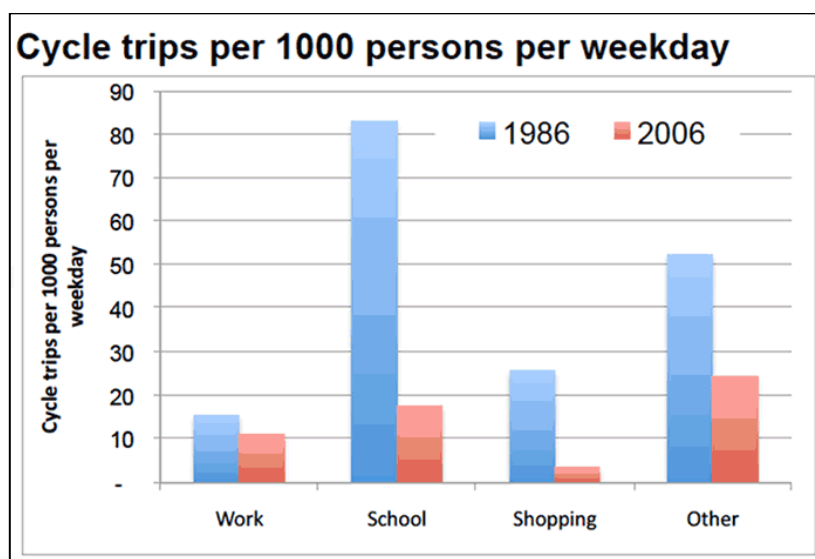
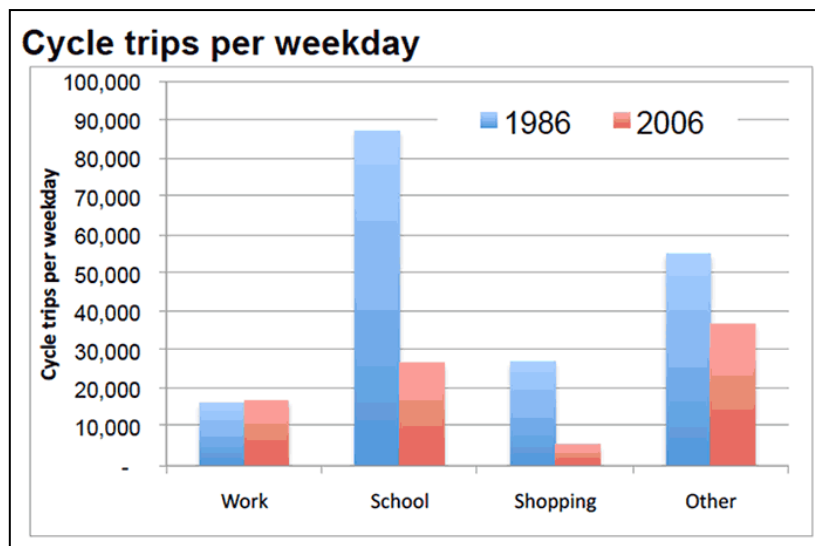
Most people agree that mandatory bicycle helmet laws breach a fundamental liberty to ride a bike without prosecution because an individual's bare head poses no plausible threat to the safety and wellbeing of others. Helmet law advocates claim the sacrifice is worthwhile because of improvements to cyclist safety and reduced head injury tied to taxpayer savings in health care.

However, government agency data published over the past 26 years has consistently shown a substantial and permanent decline in the proportion of people cycling in WA and across Australia, with consequent damage to public health.

The data suggest hundreds of thousands of Australians are discouraged from regular or occasional recreational exercise and instead mostly use their cars for transport, increasing traffic congestion and the likelihood of road trauma.

Committee members should consider evidence submitted to the 2015/16 Australian Senate Inquiry into Personal Choice and Community Impacts. The inquiry witnessed a flood of submissions well above the number usually received by Senate inquiries, with a large majority opposed to mandatory bicycle helmet laws.

For example, submission 121 by the Sustainable Transport Coalition of WA ¹³ included the following charts showing estimated daily bike trips in Perth in pre-law 1986 compared to 2006, based on data from the Perth Travel Surveys:



It is worth noting Perth's population was 1,075,959 in 1986, 1,576,912 in 2006 (46.6% increase) and 2,004,696 in 2017 (86.3% increase). It is also worth noting that average unleaded petrol prices per litre in Perth increased from 67.4 cents in 1991 to \$1.24 in 2006 (84.0% increase) and \$1.29 in 2017 (91.4% increase), which should encourage greater cycling participation.

A common argument is that bicycle helmets should be mandatory because Medicare taxes require others to pay for avoidable injuries, an authoritarian principle that could regulate all forms of personal recreation and choice, and which ignores both the public health cost of reduced fitness among discouraged cyclists and the increased number of cyclist hospital admissions since 1990-92.

According to Australian Institute of Health and Welfare data, there were 7,520 national cyclist hospital admissions in pre-law 1989/90 and 10,098 in 2013. Alternative estimates by the Bureau of Infrastructure and Regional Development show that from 2011 to 2014, road user hospital admissions were: drivers up 0.7% (11,601 > 11.687); passengers down 3.1% (5,175 > 5,015); pedestrians down 7.2% (2,760 > 2,562); motorcyclists up 10.1% (7,571 > 8,335); pedal cyclists up 23.2% (5,393 > 6,642) ¹⁴.

There are various reasons why bicycle helmet laws increase rather than decrease the number of cyclist crashes and hospital admissions, a primary cause being risk compensation by cyclists who ride faster or more dangerously because they believe their helmet will prevent serious injury. Soft-shell bicycle helmets only provide brain protection at impact speeds up to approximately 18kph.

Other causes may include safety in numbers whereby motorists become more familiar and aware of large rather than small numbers of cyclists, helmet interference with peripheral vision, increased forehead sweat and/or increased head weight causing a centre of gravity imbalance.

Further, the greater injury risk per cyclist could be due to a helmet making head impact more likely due to the larger diameter contacting a hard surface, usually the road, at an angle during an accident, and in some cases cyclists carrying rather than wearing a helmet to reduce their risk of police apprehension but impeding their ability to steer the bicycle.

Another possible reason for greater accident/injury risk is when tens of thousands of discouraged cyclists instead drive cars at any given time, causing greater vehicle traffic density and risk of collision with cyclists or other road users.

The discouragement of cycling has a significant economic cost for WA and Australia through its contribution to worsening traffic congestion and its long-term impact on public health when many would-be cyclists instead drive cars or are otherwise sedentary.

The Select Committee on Personal Choice and Community Safety should temper its consideration of claims that helmet laws prevent numerous head injuries and do not discourage cycling, as such claims are at odds with most pre and post law data from the ABS, hospitals, cycling surveys and trends visible on Australian roads.

The discouragement and safety fear caused by helmet legislation is also apparent in the failure of BikeShare schemes across Australia and particularly in WA.

In their own electorates, committee members should observe the number of cyclists who are knowingly and openly defying the law to risk a police infringement by riding without a helmet, particularly in Perth's middle to outer suburbs. If all these "offenders" were prosecuted and consequently discouraged from further cycling because of their dislike for helmets, Australian cycling participation would plunge further.

With WA's current state of enforcement, it is likely the several hundred cyclists who are apprehended each year receive their infringement notice while other bare head cyclists ride past and are ignored by the apprehending police officers. Laws that are only occasionally enforced are unjust and foster disrespect for societal rules.

The alternative of strictly enforcing the bike helmet law uniformly against all bare head cyclists, and/or increasing WA's \$50 penalty, would inevitably lead to fewer cyclists, more cars, reduced public health and increased road trauma.

For example, in March 2016 the NSW Government increased its bike helmet penalty 350% to \$319, with cyclist infringements up 38% over the following 12 months to 9,760 (vs 507 in WA). National Cycling Participation 2017 data show people cycling at least once a week in NSW dropped from 16.7% in 2015 to 12.5% in 2017, the lowest rate for any Australian jurisdiction.

The NSW penalty increase and crackdown resulted in approximately 316,000 fewer people riding bikes in 2017 than in 2015, many probably driving their cars instead. The NSW road toll was 3% higher in 2017 than in 2016 ¹⁵. From an injury perspective, there were 25.15% fewer people cycling and NSW cyclist injuries dropped by just 7% in the 10 months following the penalty increase.

In WA, the most notable impact of July 1992 mandatory helmet law enforcement was the disappearance of plain clothed recreational cyclists. Lycra clad cyclists then dominated, although it's difficult to determine whether their numbers increased or if it appeared so because of the absence of plain clothed cyclists. The recovery in numbers from the year 2000 (but decline in recent years) was mostly plain clothed cyclists, many without helmets. It is uncommon to see child cyclists although they almost always are wearing helmets.

It should be noted that WA hospital administrators claim 20-25% of seriously injured cyclists were not wearing a helmet at the time of their accident, but about 40% of cyclists on WA roads are not wearing helmets.

Numerous studies have shown that Australia's obesity levels are among the worst in the world and cost Australian taxpayers billions of dollars in public health funding. For example, recent studies suggest rapidly increasing rates of type 2 diabetes, which is fuelled by obesity and lack of exercise, cost Australia \$14.6 billion per year based on 2010 dollars applied to 2005 diabetes cases among Australians aged 30+ ¹⁶.

Health Department assessments show 28.4% of West Australians aged 16+ were obese in 2016, up significantly from 21.3% in 2002. In 2016, 20% of WA children aged five to 15 were obese and 25% were overweight or obese ¹⁷. Recent studies show only 39% of West Australian children were getting enough physical activity in 2016, down markedly from 56% in 2007 ¹⁸.

Doctors and surgeons support mandatory laws because without doubt they treat patients whose head injuries have been prevented or reduced by a bicycle helmet, and they see a direct benefit in a traumatic setting.

What they don't see is the circumstance of each bike accident and the possibility that a head injury such as concussion has actually been due to a helmet increasing their patient's head diameter, causing angular road contact that might otherwise have been a narrow miss.

What they don't see is shoulder, torso, leg and other non-head injuries being caused by a helmeted cyclist riding more dangerously than they otherwise would with a bare head. What they don't see are the tens of thousands of discouraged cyclists whose lack of exercise leads to long-term ailments, or whose car crash has led to another injury being treated in the emergency department.

Twenty six years after mandatory bicycle helmet law enforcement in WA, governments around the world have considered the Australian results and chosen not to mandate bike helmets for adults. In fact, more national jurisdictions have repealed than enacted adult helmet laws in recent years (e.g. Israel, Malta, Bosnia and Herzegovina).

To ensure growth in healthy cycling participation over coming years, the best course of action is to repeal the bicycle helmet law for all ages to ensure that young West Australians are not discouraged and unfamiliar with cycling as they grow into adults.

The emergence of computer games, the internet, social media, etc, has likely contributed to the decline in outdoor recreational pursuits among WA youth since the 1990s, but these influences increase the need to attract young people to participate in regular outdoor activities they consider to be fun or a convenient means of free transport, rather than exercise.

Regular and healthy outdoor recreational pursuits are particularly important during the early years of growth as they strongly influence the weight, physiology and metabolism of people during their later years.

However, repeal of the law for children would undoubtedly be politically unpalatable and would prompt a hostile media reaction, regardless of the evidence. The compromise is to recommend repeal of the helmet law for adults.

A concession for legal bare head adult cycling only off roads would probably be an unworkable solution as it would be both difficult to police and often pose an impossible task for cyclists who must travel some distance on roads to reach cycle paths.

Committee members should recognise that WA's mandatory helmet law continues to discourage a substantial level of healthy recreational bike riding yet increases the accident/injury risk to cyclists and other road users. Their recommendations should not be influenced by what is best for their political popularity when confronted by a poorly researched pro-law media, but by what is best for the long-term health and road safety of all West Australians.

Conclusion

WA's all age mandatory bicycle helmet legislation is a clear breach of personal choice for West Australians. Available evidence overwhelmingly suggests that at the same time, the helmet law incurs a significant public health cost and is detrimental to overall community safety through reduced fitness and increased injury risk to all road users including cyclists.

The Select Committee on Personal Choice and Community Safety is urged to recommend at least partial repeal of WA's mandatory helmet law that substantially discourages regular recreational exercise, worsens road accident/injury risk and is a significant failure of public policy.

Yours in trust

Chris Gillham

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Addendum for regional committee members

An imprecise but instructive estimate can be made of cycling participation in regional areas outside Perth before WA's 1992 bicycle helmet law enforcement when compared to 2017.

The 1985-86 CR69 survey data ⁴ suggest an average 50,600 West Australians aged 9+ who were located outside Perth cycled each day, illustrated below.

Total number of trips (in '00) per day in Australia classified by mode of travel, sex and rest of State or Territory, excluding the capital city

	New South Wales				Western Australia			
	Victoria		Queensland		Tasmania	NT	Total	
Males								
Walk	4049	1190	2095	739	488	432	97	9090
Bicycle	1959	899	1744	343	400	202	61	5606
Bus	929	203	248	107	83	60	17	1646
Train	156	59	66	0	15	0	0	297
Tram	0	32	33	0	0	0	0	65
Taxi	168	52	66	29	7	10	2	335
Ferry	60	3	70	0	0	0	0	133
M/Bike	722	172	416	219	68	19	78	1692
C/driver	16573	5053	11201	2929	3845	2339	666	42606
C/pass	4671	1559	2657	985	1094	562	133	11660
Truck	417	162	318	0	42	26	0	966
Semi-tr	0	0	0	0	4	6	0	10
Other	113	49	168	9	37	16	2	395
Total	29815	9432	19081	5361	6083	3672	1057	74501
# males ('000)	822	254	548	154	167	106	27	2079
Females								
Walk	3978	1175	2209	745	486	709	124	9427
Bicycle	776	270	611	234	106	42	57	2097
Bus	958	290	345	106	106	55	9	1870
Train	111	28	0	0	0	0	0	139
Tram	0	30	0	0	0	0	0	30
Taxi	195	108	140	73	8	19	4	548
Ferry	15	0	20	0	0	0	0	35
M/Bike	10	13	42	61	16	0	0	143
C/driver	11772	4089	7414	1960	2743	1517	303	29797
C/pass	7417	2572	4947	1521	1409	901	258	19024
Truck	0	0	17	0	0	0	0	17
Semi-tr	0	0	0	0	0	0	0	0
Other	63	6	69	0	8	0	0	146
Total	25296	8581	15814	4702	4883	3243	755	63273
# females ('000)	811	258	527	146	143	106	23	2013
Source: Survey of Day-to-Day Travel in Australia 1985-86								

The NCP 2017 survey data ² suggest an average 59,094 regional West Australians outside Perth cycled each day.

WA's regional population in 2017 was 647,764. The NCP 2017 survey estimated 20.6% of residents aged 2+ in regional WA cycled at least once a week.

$$647,764 \times 20.6\% = 133,439$$

The NCP 2017 survey estimated that throughout WA, the average number of days ridden by participants in the past week was 3.1.

$$133,439 \times 3.1 = 413,661$$

Average daily cycling can be calculated by dividing the seven days.

$$413,661 / 7 = 59,094$$

50,600 > 59,094 is a 16.8% increase in the number of people cycling each day from 1986 to 2017. However, the population of regional WA increased 69.1% from 1986 to 2017 (383,060 > 647,764), with most population growth concentrated in southern WA.

This is a comparison of daily cyclist numbers aged 9+ in 1986 with daily cyclist numbers aged 2+ in 2017. Variables such as 3.1 are statewide and it is not known if the average weekly number of days cycling is the same in Perth and in regional WA.

These data do not provide an accurate estimate or comparison of 1986 and 2017 cycling participation due to the inconsistent variables.

Nevertheless, if the 1986 survey estimates included all ages including less than 9yo, it is likely they would show a greater number of people cycling six years before 1992 helmet law enforcement than in 2017, despite WA's 69.1% regional population growth, and the data provide some indication of how cycling popularity has been affected outside the Perth metropolitan area.