1. Summary: it’s time to relax our helmet laws

Mandatory helmet laws (MHL) were introduced in Australia in the early 1990s. Since then they have been the most divisive issue in bike riding. Supporters believe they are vital to prevent head trauma. Opponents believe they discourage bike riding by making it appear like a dangerous and inconvenient activity.

Bicycle Network has supported MHL since shortly after it was introduced. But after nearly 30 years, New Zealand remains the only other country that actively enforces full MHL. While many continue to avoid this divisive issue, we believe it’s irresponsible not to ask: should Australia still have MHL?

Unfortunately, the more than 2,500 academic studies on MHL don’t provide clear guidance. While they show that helmets reduce head injury if you crash, they don’t categorically establish whether MHL reduces rider numbers.

It is clear that in Australia not enough is being done to improve bike riding. Fatalities and injuries are not decreasing. The number of people riding bikes is not increasing. With the populations of our cities set to increase by over 60% in the next 30 years [1], we need to ask whether MHL is appropriate for Australia in 2018 and into the future?

With the evidence unclear and little progress made to improve bike riding, we need to proceed carefully. 85% of bike rider fatalities occur in crashes with vehicles driven by people [2]. Unfortunately, we don’t believe Australia is yet able to abandon MHL on the road because of interactions with vehicles.

However, in low risk environments where there are no cars, such as on paths and trails, we believe adults should be trusted to decide whether they wear a helmet or not. Accordingly, Bicycle Network is recommending that:

Australia’s MHL be relaxed with a five-year trial permitting people over the age of 17 to ride on footpaths and cycle paths without a helmet.

The key reasons for this recommendation are:

- Australia is out of step with the rest of the world when it comes to MHL
- the risk for bike riders is substantially created by people driving vehicles
- Personal Protective Equipment (PPE) is the worst method for preventing injury and should not be used as an excuse for not providing protected places to ride
- 58.3% of bike riders are calling for a change to Australia’s MHL and their knowledge and beliefs are highly valuable.
2. MHL is one of the most explosive issues in bike riding

Australia’s MHL is one of bike riding’s most divisive and polarising policy issues. Whether you ride a bike all the time, sometimes or never, it’s likely that you have an opinion on whether wearing a helmet should be compulsory.

Not only do people have strong individual opinions, but considerable academic brain power has been used to compile many studies and reports about MHL. The disparate opinions and studies mixed with the scarcity of reliable data measured before and after the introduction of MHL, have fuelled an emotive and contentious debate.

Advocates of MHL strongly argue that helmets save lives by reducing the number of serious head injuries. Opponents raise concerns about the impact of MHL on cycling participation because it presents riding a bike as a dangerous activity which requires head protection. Helmets are also presented as a nuisance that makes bike riding inconvenient.

Bicycle Network started supporting MHL shortly after it was introduced in Australia in the early 1990s. We’ve endured heavy criticism for not advocating to repeal MHL. More recently, we’ve received just as heavy criticism for announcing we are reviewing our policy.

Unfortunately, the level of passion has made it difficult to even talk about MHL. It’s often described as a no-win (or wedge) issue that people advise you to avoid. This is the exact reason we believe a review is necessary. If Australia is to move forward as a bike riding nation we need brave, bold thinking where nothing is off limits.

One important point to make is this paper is examining whether it should be compulsory to wear a helmet while riding a bike. This is a different issue to whether you should wear a helmet or not.
3. Australia and New Zealand are the only two countries with full MHL

3.1 MHL was introduced into Australia in the early 1990s

In 1978, the Australian Federal Parliament’s Road Safety Committee recommended that the possibility for MHL should be kept under review. In 1985, an Australian Parliamentary Committee recommended compulsory wearing of helmets for all people who ride bikes on roads and other public places [3].

In December 1989, the then Prime Minister Bob Hawke invited the states and territories to introduce MHL and offered additional funding for states and territories that did.

On 1 July 1990, Victoria passed the world’s first mandatory bicycle helmet laws. Between 1990 and 1992, laws mandating bicycle helmets were enacted in each Australian state and territory. Two years later in 1994, the Northern Territory relaxed its MHL by permitting people over the age of 17 to ride on footpaths and cycle paths without a helmet.

![VicRoads poster from 1990 advertising MHL.](image)

Figure 1 – VicRoads poster from 1990 advertising MHL.
3.2 Not many other places in the world have MHL

In 1994, New Zealand followed Australia’s lead and introduced MHL. Since then, MHLs throughout the world have only been introduced in some areas and with much inconsistency.

The inconsistency comes from the extent of MHL. While Australia has a full MHL (except in the Northern Territory) many other countries have introduced partial MHLs where helmets are only compulsory in certain circumstances or for certain people.

Some global examples which display the variations of MHL between and within countries include:

- bicycle helmets are required by law in Dubai (as are reflective jackets), but are not required in the rest of the United Arab Emirates
- in Canada, bicycle helmets must be worn by all people in five provinces, by young people in three provinces and aren’t mandatory for anyone in five provinces
- in 2017, France became the most recent country to introduce a MHL: it requires all children aged 12 and under to wear an approved helmet while riding a bike, whether they are pedalling or as a passenger [4]
- Malta, Russia, Singapore and Portugal have MHL for electric bikes
- Hungary has MHL for high speed environments
- Spain requires bike riders outside towns and cities to wear cycle helmets except when going uphill or when it’s hot.

An added complexity comes from enforcement of MHL. In some places, a partial MHL is law but is rarely enforced. In Australia, a fine for not wearing a helmet is the most frequent of fines issued to bike riders. For example, recent figures from Victoria show that 62.5% of fines to bike riders were for not wearing a helmet [5].

As a result, we have a global situation where some countries have partial or relaxed MHLs and other countries enforce it some of the time. In looking at the following map, it’s clear that Australia and New Zealand stand alone with full and enforced MHL.

![Figure 2 – World map of MHL. Places in red have a full MHL and those in light brown have a partial MHL [6].](image)
3.3 Countries and cities are repealing their MHLs

There are also several countries and cities that have introduced MHLs and subsequently repealed them in recent years. For example:

- in 2010, Mexico City repealed its MHL to coincide with the introduction of its public bike share scheme – Ecobici. Since then, the program has expanded by 400% [7]
- in 2011, Israel changed the MHL it introduced in 2007 to exclude adults riding bicycles on ‘inter-city’ or urban roads [8]
- in 2017, Bosnia Herzegovina repealed its full MHL after strong campaigning from the Centre for Environment and the European Cyclists Federation (ECF) [9]
- in 2018, Malta announced it was going to amend its MHL to make helmets optional below certain speed limits [10].
4. More people wear helmets than 50 years ago

Humans have worn helmets during wars for thousands of years. But it wasn't until the early 1900s that helmets started to move beyond the battlefield to workplaces and some contact sports.

A significant moment in the history of helmet development was in 1935 when medic Hugh Cairns started developing a motorcycle helmet following the death of his patient, Lawrence of Arabia (who incidentally swerved to avoid boys on bicycles) [11]. After motorcycles became more powerful, Australia became the first country to make helmets compulsory on motorcycles in 1961 [12].

More recently, helmets have grown in their use in sports and recreational activities. Some interesting examples are:

- helmets were first worn in elite cricket in the 1970s and have since become common for batters and fielders positioned close to the wicket [13]
- with improvements to skis in the early 1990s which saw slope speeds increase, skiing helmets moved from just being worn by professional athletes to worn by most recreational skiers [14]
- there's been much inconsistency in football codes with little helmet use among elite rugby league and Australian Football League players but compulsory helmets in American football
- in professional cycling, the death of Andrei Kivilev following a crash in 2003 at the Paris-Nice race was the trigger for the UCI to make bicycle helmets compulsory in all endorsed races [15].

It's clear that the use of helmets across a range of sports and activities has evolved over time. We now have a situation where:

- there are some activities where helmet wearing has become common practice e.g. skiing
- there are some activities where controlling authorities such as sporting bodies or workplaces require participants to wear a helmet e.g. American football.

Motorcycle riding and bicycle riding are the only activities where governments have intervened to make it a criminal offence to not wear a helmet.

At the same time, there appears little appetite from any level of government to pass laws that make helmet use mandatory in other aspects of life where head injuries occur such as travelling in a car, walking down the street or using a ladder.
5. Helmets aren’t the best way to avoid injury

In the practice of risk management, personal protective equipment (PPE) is regarded as the least effective means of preventing injury [16]. The best methods control the hazard or risk at the source to prevent an incident occurring in the first place. It’s a bad moment when you need to rely on a PPE.

The following pyramid shows how the preference is to design systems that eliminate, reduce or isolate hazards early.

![Hierarchy of Controls Pyramid](image)

*Figure 3 – Hierarchy of controls pyramid* [17]

It’s been well established that in Australia, 79% of bike crashes are the fault of a person driving a car [18].

Accordingly, the most effective risk management strategy is to separate cars from bike riders. As a piece of equipment, a bike alone does not carry high risk. Rather, it’s the external environment that creates the risk. For people who ride bikes, that risk is primarily created by a person driving a vehicle.
Bike advocates have used the following diagram to show the preferred hierarchy of hazard control for people riding bikes.

Figure 4 – Hierarchy of controls for bike riders pyramid [19]

The best practice risk management approach which means PPEs are the last strategy to use suggests the best question to explore is, ‘When will we have sufficient risk mitigation to not need helmets?’

Sadly, because PPE is easier to implement, it often leads to a focus on the least effective hazard control. For bike riding that means MHL at the expense of building separated, connected and attractive places to ride.
6. The risk of riding a bike isn’t as high as many believe

It’s important to realise that like many activities where the consequences of disaster are extremely severe, the likelihood of a bike crash is often significantly overstated. In fact, in Australia, more people end up in hospital from falling off a chair or bed than a bike [20].

The chances of being involved in a crash while riding a bike are low (less than 1% for a year and 0.003% on any given day) [20]. Riding a bike in Australia is only slightly riskier than being in a car – that is for every 10 kilometres cycled, there are 0.073 fatalities compared to 0.047 for car passengers and drivers [21].

When people think of cycling or bike riding they often think of the situations that they see most often. These are in road environments of high speed or high traffic where the risk to bike riders from a person driving a vehicle is higher.

However, in countries that have high numbers of people riding bikes, the highest proportion of riders are in low speed, low traffic situations where the risk is much lower.
7. No progress has been made reducing trauma for bike riders

The following graph shows the number of bike riding fatalities in Australia since records were kept in 1982. At first glance it seems that MHL made a massive impact.

![Graph showing Australian bike riding fatalities by year](image)

*Figure 5 –* Australian bike riding fatalities by year [22]. The shaded block illustrates the years where MHL was enacted in Australia.

However, there was also a corresponding fall in all road fatalities as shown in the following table [22].

<table>
<thead>
<tr>
<th></th>
<th>1982 to 1989 (average)</th>
<th>1993 to 2000 (average)</th>
<th>% fall</th>
</tr>
</thead>
<tbody>
<tr>
<td>All road deaths</td>
<td>2,890</td>
<td>1,871</td>
<td>35.3%</td>
</tr>
<tr>
<td>Bike rider deaths</td>
<td>88</td>
<td>47</td>
<td>46.5%</td>
</tr>
</tbody>
</table>

By looking at this data it’s difficult to say what contribution MHL made to the fall in bike rider fatalities. Other factors and road safety interventions also clearly contributed to the corresponding fall in total road deaths. The data is also not clear on whether fatalities pre and post MHL were caused by head injury and trauma.

Disturbingly, while the number of bike rider fatalities fell in the early 1990s, there has been no meaningful reduction in fatalities over the last 20 years. The data around serious injury is even worse. A Monash University Study found that cycling was the only transport mode to experience an increase in incidence of hospitalisations for road-traffic trauma, increasing 8% annually between 2007 and 2015 [23].

Bicycle Network’s 2018 Fatality Report showed that in 85% of fatalities, people riding bikes are killed in crashes with other motor vehicles [24].
8. The number of people riding bikes in Australia has stagnated

The data on bike riding participation in Australia is limited. While there are some sources of data for particular locations (such as digital counters and Bicycle Network’s Super Tuesday counts), the best and most consistent source of Australia-wide data is the Australian Census. However, the census occurs once every five years and only measures journey to work data on a given day. It does not include other types of bike riding such as local trips, recreation, fitness or racing.

The census data shows that the percentage of bike commuters rose from 1976 to 1986, fell from 1986 to 1996 and has since been stagnant. The number of Australians riding for transport has increased in proportion to the population.

<table>
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<tr>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Bicycle (total)</td>
<td>53250</td>
<td>76851</td>
<td>86201</td>
<td>81995</td>
<td>74451</td>
<td>78210</td>
<td>90117</td>
<td>103913</td>
<td>107756</td>
</tr>
<tr>
<td>%</td>
<td>1.1%</td>
<td>1.6%</td>
<td>1.7%</td>
<td>1.6%</td>
<td>1.2%</td>
<td>1.2%</td>
<td>1.2%</td>
<td>1.2%</td>
<td>1.1%</td>
</tr>
</tbody>
</table>

Figure 6 – Australians riding to a bike to work [25]

Another source of bike riding participation data was the previously federally funded National Cycling Participation from 2011-2017 [26]. The survey was used to monitor the success of the National Cycling Strategy which had a goal of doubling Australia’s cycling participation numbers. That survey revealed that the number of Australians riding a bike in the previous:

- week fell from 18.2% in 2011 to 15.5% in 2017
- month fell from 27.1% in 2011 to 21.8% in 2017
- year fell from 40.2% in 2011 to 34.1% in 2017 [26].

With bike commuting numbers in leading global cities like Copenhagen and Amsterdam at more than 50%, it’s clear that Australia’s bike riding participation is languishing [27] [28].
At the same time, other cities around the world have made great leaps forward. For example, bike trips in Seville, Spain multiplied eleven-fold in a few short years thanks to steady investment and the construction of 75 miles of separated and protected cycling networks [29].

It’s worth highlighting that the number of bike rider fatalities per kilometre travelled is far lower in the places where more kilometres are travelled by bike.

Figure 7 – International comparison of bicycle travel per person and fatalities per km travelled [30]
9. Academic studies show helmets reduce head injury if you crash

As part of a policy review, Bicycle Network commissioned a rapid review of the academic studies into the impact of MHLs on bike ridership, crashes and injury. Conducted by an external researcher, the review identified a staggering 2,523 studies (see Appendix 1).

The rapid review identified six key themes:

1. there is a lack of reliable data to show the impact of MHL on the number of bike riders
2. MHLs may protect against bicycle-related serious injury in Australia
3. the effectiveness of MHLs outside Australia are mixed
4. published data on bicycle-related injuries often carries bias
5. head injury rates are commonly in decline prior to MHL being introduced
6. MHLs alone will not protect persons riding bicycles against risks.

In short, the academic studies appear to confirm a part of the helmet debate that is often not disputed: if you are involved in a crash and hit your head and you’re wearing a helmet, the chance of sustaining a serious head injury is reduced.

Unfortunately though, the academic evidence doesn’t provide a clear answer to the MHL debate.
10. Opinion about MHL is divided

In 2017, Bicycle Network obtained both public and expert opinion on Australia’s MHL. Consistent with the controversy around the issue, the results show opinion is divided.

1. 41.7% of bike riders believe MHL should remain, 58.3% say it should change

In September 2017, Bicycle Network conducted a survey of public attitudes towards MHL. The responses were primarily from Australians who ride bikes. We received 19,327 responses: which is more than four times the number of responses Bicycle Network has ever had to a survey.

The survey results were as follows:
- 41.7% of survey respondents believe Australia’s current MHL should remain, leaving 58.3% of respondents believing it should change.
- 17.6% believe that bicycle helmets should never be mandatory and;
- 40.7% believe that helmets should only be mandatory in certain circumstances [31].

![Pie chart showing survey results about should Australia have MHL](image)

Figure 8 – Survey results about should Australia have MHL [31]

The survey also revealed:
- the strongest supporters of MHL are Victorians, Tasmanians, baby boomers, women, those who’ve had a serious crash and Bicycle Network members
- the weakest support for MHL comes from Queenslanders, millennials, those who ride once or a few times a year and non-Bicycle Network members.
- if helmets weren’t mandatory only 3.7% more people would never wear a bicycle helmet but 34.3% less would always wear a helmet when riding a bike
- 30.4% would ride more if helmets weren’t mandatory with the biggest number of people who would ride more being Queenslanders, millennials and infrequent riders.
2. Expert opinion is divided or avoided all together

Bicycle Network invited 120 experts, decision-makers, advocates and academics across health, medical, bike riding, town planning, behaviour change and government industries to contribute their opinion towards Bicycle Network’s review.

We received 32 submissions of which 28 gave their permission for their opinions to be published online. Many bicycle organisations and government road safety experts declined or failed to respond (see Appendix 2) [32].

19 of the experts don’t believe it should be mandatory to wear a helmet at all times when riding a bicycle, eight believe it should always be compulsory and one believes the evidence is insufficient to make it clear one way or the other.
11. We need to build an Australia for 2018 and beyond

Since 1990, our world has changed significantly. Cultural diversity, terrorism and mobile technology have shaped a different world. But perhaps the biggest change we’ve seen, and will continue to see, is the massive change to our urban environments caused by population growth.

A quick analysis of the populations of Sydney, Melbourne, Brisbane, Perth and Adelaide reveal the change that has happened and is facing us. As the following table shows, our populations have grown by 46.7% since MHL was introduced and are set to grow by a staggering 61.7% in the next 30 years [1].

<table>
<thead>
<tr>
<th>City</th>
<th>1986</th>
<th>1994</th>
<th>2017</th>
<th>2046</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sydney</td>
<td>3m</td>
<td>3.7m</td>
<td>4.6m</td>
<td>7.4m</td>
</tr>
<tr>
<td>Melbourne</td>
<td>2.4m</td>
<td>3.7m</td>
<td>5m</td>
<td>7.3m</td>
</tr>
<tr>
<td>Brisbane</td>
<td>1.2m</td>
<td>1.4m</td>
<td>2.4m</td>
<td>4m</td>
</tr>
<tr>
<td>Perth</td>
<td>1.1m</td>
<td>1.2m</td>
<td>2.1m</td>
<td>4.3m</td>
</tr>
<tr>
<td>Adelaide</td>
<td>1m</td>
<td>1m</td>
<td>1.3m</td>
<td>1.9m</td>
</tr>
<tr>
<td>Total</td>
<td>9.7m</td>
<td>10.5m</td>
<td>15.4m</td>
<td>24.9m</td>
</tr>
</tbody>
</table>

Figure 9 - Pictures showing Melbourne’s growth

By focusing on the past for answers about whether MHL worked when it was introduced in 1990, we miss the important question of, ‘Given our current environment and the one in our future, would we still write the law today?’

After going through mountains of information and listening to impassioned pleas from both camps, one thing continues to stand out: Australia is out of the step with the rest of the world. While many governments looking to overcome the challenges of crippling congestion and debilitating physical inactivity are turning to bikes, Australia remains slow to act. Every tiny step forward is taken with trepidation about the possible bikelash.

It’s time Australia realised that the bicycle is one of the best examples of where yesterday’s invention is the solution to tomorrow’s problems.
12. **Recommendation: trial relaxation for adults off road**

Australia is often seen as a road safety leader. Victoria introduced compulsory seat belts in 1970 and most of the world followed. The same hasn't happened with MHL. There's an old Afghan proverb which we think is relevant in this case, 'If you think you’re leading and no-one is following you’re only taking a walk.'

Regrettably, in 2018, riding a bike on Australian roads still carries too much risk of being hit by a person driving a vehicle. Not enough has been done to protect people who ride bikes. Accordingly, we are unable to recommend that MHL be repealed for on-road bike riding.

Similarly, for the same developmental reasons that young people under the age of 17 aren’t permitted to obtain a driver’s licence, we are unable to recommend that MHL be repealed for children under 17.

However, we do need to have laws that cater for our future. But with the academic evidence not providing clear guidance, we should proceed carefully. Therefore, when it comes to adults riding a bike off-road Bicycle Network is recommending that:

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**Australia’s MHL be relaxed with a five-year trial permitting people over the age of 17 to ride on footpaths and cycle paths without a helmet.**

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This would bring the rest of Australia into line with the Northern Territory.

As outlined in this paper, the key reasons for this recommendation are:

- Australia is out of step with the rest of the world when it comes to MHL and using bikes to provide for the future growth in population
- the risk for bike riders is substantially created by people driving vehicles
- Personal Protection Equipment is the worst method for preventing injury and should not be used as an excuse for not providing protected places to ride
- 58.3% of bike riders are calling for a change to Australia’s MHL and their knowledge and beliefs are highly valuable.

There are three last points to stress.

Firstly, by recommending a relaxation of MHL for adults riding a bike off-road, we’re not discouraging people who ride bikes from wearing a helmet. We’re trusting adults to make decisions regarding their safety, as many adults do in their daily life. We’re simply saying that there isn’t sufficient justification for bike riding in an off-road environment to be one of the occasions where we need to save people from themselves.

Secondly, the law in Northern Territory says helmets aren’t compulsory on cycle paths and footpaths. To support a successful trial relaxation of MHL, footpath riding laws in Victoria and
New South Wales should be brought into line with the rest of Australia so that people of all ages have this option.

Thirdly, we need to do more to protect people who ride bikes on our roads. It’s a sad reflection on Australia that we’re languishing not leading. MHL is just one of many issues. Instead of focussing on PPEs, it’s time we moved up the pyramid and devoted time and energy to working on eliminating and reducing a key hazard for people who ride: which we all know is vehicles.
Bicycle Network

With nearly 50,000 members, Bicycle Network is one of the biggest bike riding organisations in the world. With a proud history reaching back more than 40 years, we are committed to improving the health and wellbeing of all Australians by making it easier for people to ride a bike.

We have a measurable and large-scale impact in community participation and the promotion of healthy lifestyles through bike riding.

We achieve this through:

- improving the bike riding environment by working with government at all levels to provide better infrastructure, data, policies, legislation and regulations
- delivering successful, large-scale and measurable behaviour change programs such as Ride2School and Ride2Work
- providing services that support bike riders through membership
- running mass participation bike riding events such as Around the Bay, Great Victorian Bike Ride, Peaks Challenge Falls Creek, Newcrest Orange Challenge and Gravel Grit.
- being a key spokesperson on issues related to cycling and physical activity.

If you need our help in building a nation of bike riders, please contact us via bicyclenetwork.com.au.
References


