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c/o <https://new.parliament.vic.gov.au/get-involved/inquiries/roadsafetybehaviours/submissions>

## Inquiry into the Impact of Road Safety Behaviours on Vulnerable Road Users

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Victorian Motorcycle Council Submission  
May 2023

## About this submission:

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The Victorian Motorcycle Council welcomes the opportunity to make a submission to the Inquiry into Road Safety Behaviours Impact on Vulnerable Road Users.

The Victorian Motorcycle Council was created to represent the interests of all motorcyclists, motorcycling organisations and relevant stakeholders in Victoria. The Victorian Motorcycle Council is represented on the Australian Motorcycle Council, the peak motorcycle body in Australia.

This submission takes into account the extensive knowledge and thinking of a diverse group of experienced, representative and interested motorcyclists. It also captures the broader views of the motorcycling community that engaged with the VMC on this topic.

The information included in this submission is for all intents and purposes, factual, correct, accurate and relevant. The VMC and/or its associates, are available to expand on any of the points contained within this submission, or available to consult further on related matters not covered in this submission.

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## ***Introduction***

The terms of reference (ToR) for this inquiry were somewhat unique in that there was principally only one and it was unusually broad. In discussing it with riders, discussions tended to go down a number of different paths. This submission therefore covers a variety of topics, some of which are very motorcycling specific. How each related back to the ToR has been attempted.

This submission also gives some insight into life on powered two / three wheels (PTW) and how it has changed pre and post pandemic, but for the most part, the key road safety issues for safer motorcycling have remained the same, it is just their degree that may have varied. The key issues are: a) rider skill and behaviour, b) other road user awareness of and their sharing of the roads with riders, and c) the condition of the roads.

In this submission, the term *motorcycle or motorbike* can be considered to apply to all types of generally recognised and traditional road going powered two or three wheeler vehicles, i.e., mopeds, scooters, motorbikes, trikes. *Riders* refers to the operators of these vehicles. This submission therefore excludes e-bicycles, e-scooters or other personal mobility devices, except where there is a road safety statistics crossover.

## ***Terms of Reference:***

*“... changes to road safety behaviours during and post the COVID-19 pandemic and impacts on vulnerable road users...”<sup>1</sup>*

The above effectively defines the given terms of reference.

## ***Initial Perception from Riders:***

When riders were asked to respond to the terms of reference, metropolitan based riders generally commented about vehicular traffic seeming more impatient, more aggressive, less adherent to the road rules, drivers more distracted and engaged with devices, and that traffic volumes seemed higher than they remember. They also reported an increase in near misses usually associated with such behaviour. In contrast, country based riders generally referred to the increasingly poorer state of the roads, as did metropolitan riders who ventured outside of the metropolitan area. There are some important and powerful insights behind these observations which are discussed below.

***Pre vs Post pandemic, riders report an increase in poor driver behaviour and a worsening in the condition and state of the roads.***

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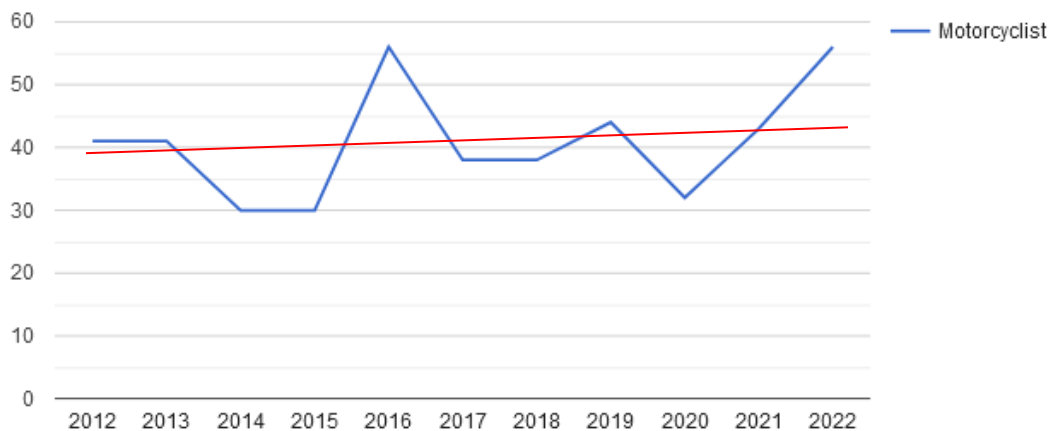
<sup>1</sup> <https://new.parliament.vic.gov.au/roadsafetybehaviours>

### *Do the Fatality Stats Provide Some Insight?*

In 2022 there was a spike in motorcycle fatality statistics<sup>2</sup>, which would appear to correlate well with the described increase in road safety dangers riders have observed. However, 2022's figures are clouded by the figure containing 40% of rider fatalities from both unlicensed riders and unregistered/unroadworthy PTW's<sup>3</sup>, which are generally known to have a strong overlap of high risk riding and/or drug and/or alcohol involvement. This significant and unusually high involvement of "unriders" is a somewhat alarming figure, and is a potential indicator of a broader post pandemic societal change.

The TAC's<sup>4</sup> searchable road safety statistics database<sup>5</sup> shows that there has been a steady increase in rider fatalities over the last three years of the Covid pandemic. Starting from a near record low of 33 in 2020 (with its prevalent pandemic restrictions), to 43 in 2021, to 56 in 2022<sup>6</sup>. While short term trends are notoriously unreliable to draw conclusions from, it does possibly suggest that there has been a negative impact on rider road safety as post pandemic vehicular traffic volumes increased over this time frame. It may also suggest an increase in rider exposure as more riders returned to riding in greater numbers over this timeframe (riding a motorbike is a Covid safe form of travel after all). The committee are strongly encouraged to explore in detail what this correlation actually represents.

The above mentioned short term rising trend can be clearly seen in figure 1, which graphs rider road fatalities from 2012 to 2022 (figures taken from TAC data):



*Figure 1: 2012 – 2022 Victorian Rider Road Fatalities – TAC data*

<sup>2</sup> <https://www.tac.vic.gov.au/road-safety/statistics/lives-lost-annual>

<sup>3</sup> <https://www.premier.vic.gov.au/too-many-lives-lost-victorian-roads-2022>

<sup>4</sup> Transport Accident Commission – Victoria's compulsory 3<sup>rd</sup> party road injury insurance scheme.

<sup>5</sup> <https://www.tac.vic.gov.au/road-safety/statistics/online-crash-database>

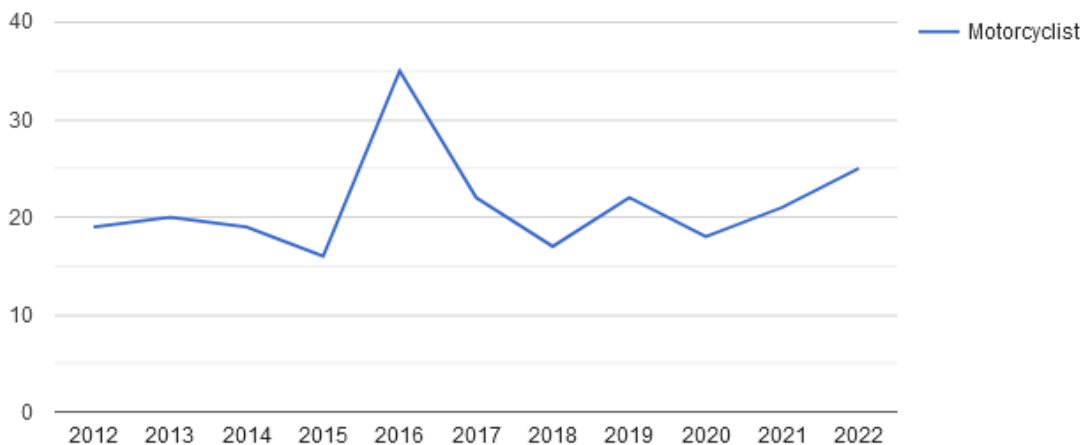
<sup>6</sup> The VMC is aware that the figure also includes at least one e-scooter, and argues it should be separated out of the rider road toll.

A slightly rising trend can be observed over the decade, however it is important to note that the number of registered road bikes increased<sup>7</sup> during this period, meaning that in real terms on a per capita registration basis, rider fatalities trended downwards.

Interestingly 2022's peak equals the 2016 peak which Victoria Police media releases (no longer publically available) largely ascribed to a combination of simple errors getting riders into trouble (ending with a bad outcome) and a relatively high "unrider" component.

While the sharply rising tail over the 2020-2022 timeframe may suggest a worrying developing trend, year to date 2023 TAC figures (as of this submission) indicate that the current rider road toll is well below the year to date figure for the same time in 2022 and also below the 5 year average. Does that mean that this trend has turned a corner? The VMC hopes so. It could also be natural variability - a longer time frame is needed to confirm any underlying trend.

The TAC's public searchable road statistics database does not provide enough detail for a deep dive into the figures. That said, it may be possible to draw a correlation regarding the interaction of motorcycles and vehicles by looking at the crash types most likely to involve another vehicle – namely adjacent direction, opposing direction, same direction and manoeuvring. Refer to figure 2 below.



*Figure 2: Attempted graph rider fatalities involving other vehicles – TAC data.*

Despite the limitations of this attempted approach, 2016's peak is a strong feature and potentially indicative of the "simple rider error" cause stated earlier. Leaving that aside, a similar short term rising trend from 2020 – 2022 is also noted. Is this indicative of the road safety behaviour of other vehicles having a greater involvement in rider fatalities? The Inquiry committee are strongly encouraged to investigate this in greater detail.

<sup>7</sup> Refer to Motor vehicle Census data held by the ABS pre 2021 and BITRE from 2022.

***Available data suggests a possible correlation between an increase in rider fatalities and the increase in traffic levels and/or their poorer road safety behaviours. This is worthy of significant further exploration.***

### ***Is There A Post Pandemic Disturbance in Society?***

Riders report that post pandemic traffic appears to be less well behaved, more aggressive, less patient, as well as exhibiting greater risk taking, e.g., speeding, tailgating, narrow passes, close lane changes, brake checking. They also note an increase in road rule infractions such as vehicles turning against red arrow traffic signals, going through late amber and red traffic lights, lane changes without indicating, and mobile phone use with correlated greater distracted driving. The contrast in traffic behaviour pre and post pandemic was a common observation riders made.

The aggression aspect seems well correlated with a very interesting observation made by a rider who is also a senior local council enforcement officer. The rider reported that the general public in their precinct appeared to be more volatile and more likely to exhibit anti-social behaviours as well as more likely to respond in a verbally abusive manner to being served an infringement. Similar observations were also made by their enforcement team members about the community in general.

It appears that society, or perhaps a sector of society, has been negatively impacted by their “rights” having been infringed by the pandemic response and now may be more anti-authoritarian or respond less well to any imposition or hindrance on their freedom. This negative trend may also be seen in social media interactions.

Another often reported observation in mainstream media is that the pandemic has had a negative impact on the mental health of Victorians. Is there a road safety correlation between a mental health decline and the increased observation of poor road user behaviour?

There is clearly a lot to unpack sociologically in the wake of the pandemic, but the possible undercurrent of negativity and poorer mental health may provide a clue to both the higher “unrider” involvement, as well as the degraded road safety behaviour exhibited by vehicular traffic. Is society experiencing a post pandemic hangover?

***There may be a post pandemic sociological impact on road users leading to more aggressive and less safe road behaviours.***

### *What About Road Conditions?*

Two wheeled motorcycles are highly sensitive to the condition of the roads for their road safety. With only two contact patches to the road surface, traction is all important.

In the post pandemic period, the road system has been reported to be in a poorer condition and state of repair, particularly after the heavy flooding and rains experienced throughout parts of Victoria. It is also experiencing historic levels of road construction which can leave road surfaces in less than ideal condition until such work is finished, as well as increasing traffic congestion and/or jams causing road user frustration. Frustrated drivers tend to exhibit both poorer judgement and increased risk taking, so there may be a correlation between a decline in road safety behaviours and the intensity of new constructions.

Leaving the frustration point aside, it is a riding reality that any time the road surface is compromised, a motorcycle rider faces increased danger. It is worth diving a little deeper into this statement.

A motorbike is a single track vehicle that is considered to be *dynamically stable*, i.e., stable when moving, as opposed to a passenger car or trike which are *statically stable* i.e., stable at rest. That dynamic stability is dependent on traction and so traction is essential for a motorcycle to remain upright while moving. While this seems obvious, it is not often well appreciated by non-motorcyclists.

Motorcycles particularly rely on front wheel traction for the self-correcting righting force that help keeps a bike up right and moving in a particular direction. Of equal importance is rear wheel traction which helps keep a bike stable and moving predictably. While this short explainer is somewhat simplified, it serves to well demonstrate that if this traction picture is disrupted, a motorcycle has a high likelihood of crashing.

Oil, diesel, fuel, coolant, water, mud, clay, loose gravel from road maintenance/repairs, unsealed blue metal from road construction, tar snakes, sand, snow, ice, painted surfaces, line markings, untreated steel cover plates, uncured tar/bitumen, road spills, shiny worn smooth roads, cow pats etc., can all significantly reduce the available traction offered by a road surface. If the bike is in a dynamic condition where the traction required to remain stable/upright exceeds the available traction, a crash is likely.

Apart from prioritising road maintenance and renewal, one possible counter measure would be to treat road locations that are prone to polishing e.g., curves and bends on popular roads, or subject to low traction conditions, e.g., gully run off, with a high friction surface treatment such as OmniGrip HF<sup>8</sup>.

In addition to the traction picture, the actual state of a road's surface can have a very significant impact on motorcycle safety. Road surface defects such rippling, bumps, shoves, cracks, undulations, road debris and potholes (not an exhaustive list) may provide

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<sup>8</sup> <https://www.omnigripdirect.com.au/products/omnigrip-hf/>



unwanted steering and other dynamic inputs into the motorcycle that can induce instability. These road features can overcome the front end righting force and/or the capabilities of the bike's suspension, resulting in a loss of control.

A very typical example of this is the front wheel hitting a pot hole resulting in what is known as a “tank slapper”<sup>9</sup>. Another example is when a bike is leaned over in a bend and hits a pot hole or a sizable road shove and is deflected wide off its path. Alternatively it could possibly buck and eject the rider from their seat or the instability initiate a “low side” where the front “tucks in” causing the bike and rider to fall to ground and slide/tumble along the road. Any of these scenarios could end disastrously.

The point is that while the Inquiry has been convened to investigate the impact of road user behaviour on vulnerable road users, motorcyclists are a vulnerable road user that faces multiple influences over their road safety. One of these is the condition of the roads which is an almost uniquely significant and critically important factor for safer motorcycling. The contribution to motorcyclist road safety from the post pandemic condition of the roads therefore deserves deeper exploration.

***Of the vulnerable road users, motorcyclists are almost uniquely dependent on good and sound road conditions for their road safety. The inquiry is strongly encouraged to investigate the road safety impact of the state of the roads.***

### ***Is Road User Awareness the Reason for More Near Misses?***

Around 10% of Victorian license holders hold a motorcycle endorsement. Motorcycles representing about 1% of total traffic volume and 4% of vehicle registrations<sup>10</sup>. This means that the vast majority of road users have no direct experience or awareness of motorcycles. This lack of awareness is understood to be at the heart of “look but fail to see” road safety incidents with PTW's. The VMC posits that extended COVID restrictions and the shift to working from home, has further reduced this already low awareness and reduced the expectation of seeing motorcycles on the road. This may explain why riders have reported more near misses. We know that the brain is more likely to “see” what it expects to see<sup>11</sup>, therefore motorcycles are “filtered out” until they loom unmissable in the driver's field of vision. This is explored further below.

After a near miss or collision with a motorcycle, drivers often comment “...*the bike came out of nowhere!*” or “...*bikes are so difficult to see!*” The experience is so common globally that the scenario has its own term: *SMIDSY* – *Sorry Mate I Didn't See You*. To help avoid such incidents, a commonly proposed countermeasure is to advocate that riders wear high visibility clothing which suggests that the error is not with the driver

<sup>9</sup> The handle bar oscillates wildly and energetically from lock to lock resulting in a loss of control and directional stability often resulting in the bike falling / crashing.

<sup>10</sup> <https://www.tac.vic.gov.au/road-safety/statistics/summaries/motorcycle-crash-data>

<sup>11</sup> There is extensive research in the field of Psychology covering expectation and awareness motivated vision. This article is the tip of the iceberg: <https://theonlinethoughts.com/2020/04/16/you-see-what-you-expect-how-our-brain-manipulates-our-vision/>

doing the seeing, but with the bike that is difficult to see. Such a proposal is intuitive and apparently self-evident, however it is flawed as high visibility clothing has not been shown to have any road safety benefit for cyclists<sup>12</sup> or motorcyclists<sup>13 14</sup>. It is a “solution” that does not address the root causes of the problem.

There are a multitude of cognitive reasons why a driver might “look but fail to see” a motorcycle, even if the bike is in plain sight, and these reasons are not addressed by making a motorcycle or its rider more visually conspicuous. Some of these cognitive issues include inattentional and change blindness<sup>15</sup>, little to no awareness of or expectation of seeing motorcycles and “time to arrival illusion”<sup>16</sup>, to name a few.

This short video gives a good simple treatment of a number of these issues (and others):

- [“Invisibility Training for Motorcyclists.”](#)

What humans see is actually a constructed image put together by the brain. As part of this process, the brain filters out visual data that it considers extraneous or not important, and at other times it is literally cognitively blind<sup>17</sup> because it is otherwise busy attending to something else. These processes are not impacted by photons having been reflected from high visibility markings or clothing, despite what people may intuitively believe.

When the brain filters out the visual presence of a motorcycle until such time as the bike represents a significant proportion of the driver’s field of view, e.g., near the point of collision, the bike will appear to have “*come out of nowhere*”. High visibility clothing will not address this. Similarly, saccadic masking<sup>18</sup> or the bike being temporarily obscured by a car’s A pillar or a road feature such as a sign, will lead to a similar claim. Hi Visibility clothing will not address this either (but teaching drivers to clear obscured areas before proceeding might).

In short, a person is more likely “see” what they are familiar with, aware of, expecting to see, and/or what they hold as important. This is well demonstrated by the common experience of buying a particular car and suddenly seeing that car everywhere on the roads. Or the often reported anecdote of family and friends suddenly seeing motorcycles (or bicycles) everywhere soon after a loved one starts riding. The brain’s visual processing and cognitive filters change in relationship to the new awareness.

To leverage this awareness effect, three possible solutions (non-exhaustive) are proposed:

1. Significantly increasing the number of the bikes on the road such that drivers will expect to see them – known as the “prevalence effect”<sup>19</sup>, or

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<sup>12</sup> <https://can.org.nz/canpolicy/high-visibility-clothing-0>

<sup>13</sup> The 2011/2012 Road Safety Committee Victorian Parliamentary Inquiry into Motorcycle Safety could not identify a clear supporting case for the benefit of high visibility clothing for motorcycle safety. <https://www.parliament.vic.gov.au/57th-parliament/rsc/inquiries/article/1409>

<sup>14</sup> <https://scienceofbeingseen.org/>

<sup>15</sup> [http://www.scholarpedia.org/article/Inattentional\\_blindness](http://www.scholarpedia.org/article/Inattentional_blindness)

<sup>16</sup> <https://pubmed.ncbi.nlm.nih.gov/16127340/>

<sup>17</sup> [http://www.theinvisiblegorilla.com/gorilla\\_experiment.html](http://www.theinvisiblegorilla.com/gorilla_experiment.html)

<sup>18</sup> <https://www.webbikeworld.com/scientific-studies-explain-smidsy/>

<sup>19</sup> <https://link.springer.com/article/10.3758/s13414-013-0603-1>

2. Increasing the community's base general awareness of motorcycles through a continuous and extended media campaign, or
3. Emphasising motorcycles in the Victorian Driver Graduated Licensing curriculum and Learner driver handbook.

The argument then is that if drivers see motorbikes, they are more likely to correctly factor them into their driving decisions. This therefore should improve how they share the roads with motorcycles thus making the roads safer for motorcyclists. The “seeing” is not enhanced or addressed by high visibility clothing.<sup>20</sup>

*The greater the degree of motorcycle awareness exhibited by drivers, the more likely they are to see and correctly factor motorcycles into their driving decisions and therefore more safely share the roads with riders.*

### **Closing Comments:**

This submission took a broad interpretation of the terms of reference since the discussion with the riding community brought to light several impacts on rider safety when comparing the pre and post pandemic time frames.

Riders reported an observed reduction in their road safety as a result of the behaviour of drivers. They also reported an increase in road hazard risk due to the state of the roads. This appears to have resulted in an increase in rider fatalities.

Several possible reasons were posited as to why driver behaviour has declined. One of the possible reasons was a reduction in motorcycle awareness leading to an increase in “look but fail to see” incidents. Three possible solutions were proposed to address this issue.

The impact of the state of the roads on motorcycle safety was also explored given that the state of the roads is reportedly worse in the post pandemic period. The solution is unsurprisingly, fix the roads or better yet, design them to be inherently more resilient to expected traffic and environmental conditions.

The VMC stands ready to provide additional input on these matters should that be required.



<sup>20</sup> <https://scienceofbeingseen.org/>