Submission on:	Land Transport (Road User) Rule 2002
To:	Rules Team, LTSA, PO Box 2840, Wellington
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Clause:	Part 11 cl 11.9
Recommendation:	Delete whole clause, and replace by "SR 1976/227 r 38A is revoked" *Or* Suspend whole clause pending a full and open inquiry into the true effects of SR 1976/227 r 38A *And* Certainly do not widen the scope of SR 1976/227 r 38A to include passengers in trailers as proposed in subclause (2) as: • there is no evidence whatsoever of benefit to such passengers; • the primary purpose of SR 1976/227 r 38A has not been realised; and • the dynamics of a passenger in a trailer are not the same as those of a bicycle rider.
Summary:	Research on the effect of the SR 1976/227 r 38A is at best inconclusive, some research claims benefit while other research claims cost, and at worst negative; this is insufficient to justify a law. Additionally other road safety approaches are known to be more effective, and there are serious equity issues in enforcing a safety measure applicable to a number of road user groups on just one group.

The Case For Abolishing SR 1976/227 r 38A

The bicycle helmet legislation, SR 1976/227 r 38A, was introduced with the stated aim of substantially decreasing bicyclist head injuries, producing a large benefit for a small cost. It as singularly failed to achieve these aims. Meanwhile in other countries people continue to enjoy much lower bicyclist injury rates as a result of safety policies that eschew the use of bicycle helmets in favour of other measures. To continue to deny New Zealanders these lower injury rates in favour of maintaining a failed approached is irresponsible. Further issues acting against the legislation include:

- the dangers resulting from over-selling the protective capabilities of bicycle helmets
- the invalid "dangerisation" of bicycling which detracts from people bicycling with consequence health costs; and
- major equity issues resulting from enforcing a safety measure applicable to a number of road users groups on just one group.

It is clearly time to close this chapter of New Zealand history, rescind the legislation, and move on to a safer future.

The following quote from a recent letter by K Wood, author of "Bicycle Crashes in New Zealand" [Wood], to the Dominion Post summarises many of the issues:

> "Of course cycle helmets protect against head injuries, but don't expect much. New Zealand helmets are designed for a 1.5 m drop test, equivalent to 20 km/h. They are useful in a fall, but in a car crash they are only useful if you are lucky or the car is stopped.
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> Cyclists in the Netherlands rarely use helmets, yet their crash risks are about seven times lower than ours, or ten times for children. If helmets are effective the difference between the cycling environments must be even worse. This huge difference points to the real problem: concentrating on helmet-wearing is a substitute for policy. The LTSA can pretend to do something, without challenging the bankruptcy of their underlying philosophy: make the roads safer for motor vehicle users, and get everybody else out of the way. This is a problem for pedestrians too. On roads with a speed limit of 50 km/h or less, pedestrians account for a third of all fatalities, and the proportion is rising.
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> The real situation is even worse. Pollution increases the 'road toll' by about 400 deaths a year, and both walking and cycling avoid both pollution and the current 'epidemic of inactivity.'
>
> It is time to try a new approach. In New Zealand, cycling is already safer than driving for the 15 - 20 years age group, and more cycling will itself reduce cyclist's risk. The Danes reduced child pedestrian risks by 84% in 20 years. We cannot do the same until we try."

From personal experience as someone who spent 2000 on sabbatical in The Netherlands I can attest to the bicycling environment there and elsewhere in Europe. Indeed as I bicycled around and saw people of all ages, from the very young to the very old, enjoying the healthy bicycle I often felt guilty – back home my fellow New Zealanders were denied such pleasures, labelled reckless, and even fined. In New Zealand a Police Officer is someone who drives around in a car, subjecting themselves to a similar risk per hour of head injury as a bicyclist, and stops occasionally to fine a "reckless" bicyclist for staying healthy and not

polluting the atmosphere. In The Netherlands a Police Officer may well be riding a bike bareheaded and giving you a friendly wave. And the cost of this to the Dutch? Lower injury levels! To not see from this that we've got something very wrong is to choose to be blind to the obvious.

When Do We Pass Safety Legislation?

At the risk of stating the obvious it is worth classifying the appropriate attitude towards to *any* proposed/claimed safety measure. There are three broad responses depending on the evidence:

1) *No comment/ambivalence*: If there is no evidence for, or against, the measure, then there may be no need to react at all. If unfounded claims are made then a statement to this effect is appropriate.

2) *Encouragement, or discouragement, to adopt*: If the evidence is inconclusive, but tending one way or the other, it may be appropriate to encourage, or discourage, the adoption of the measure.

3) *Legislation requiring, or forbidding, use*: If the evidence is compelling, either supporting the measure or showing it in fact to be dangerous, then legislation may be appropriate.

Option 3 sets a high, but necessary, bar to the introduction of legislation. It also gives us a reason to remove legislation: if it becomes apparent that the evidence is no longer conclusive, or worse, then the legislation should be removed.

The Legislation Has Failed

Bicycle helmets are far from the success that many would have us believe. While a bicycle helmet *may* reduce the severity of head injury, the occasions when this occurs are infrequent enough, and subject to so many variables, that they fail to be a proven injury reduction intervention. Indeed evidence shows that the wearing of a bicycle helmet can cause, or increase the risk of, injury as well as reduce the risk, or injury, and there is no compelling evidence whatsoever to support their mandatory wearing. Further there is strong evidence that the overall health and safety of bicyclists would improve if safety initiatives were focussed on other measures, and bicycle helmets where removed completely from the field.

Bicycle helmets have a very limited area of application; they are designed to absorb energy in low impact blows to the head, as might occur when a bicyclist falls off their bicycle unaided by anything other than gravity and their small momentum. British Standard 6863 makes this clear when stating that bicycle helmets are designed for:

> "the kind of accident in which the rider falls onto the road without other vehicles being involved"

This narrow field of application results in a number of problems, including:

- selling the "need" to wear them is hard as the risk is not high, real *or* perceived;
- the benefit is low, real *and* perceived;
- the hoped for population benefit may easily turn out to be a cost.

The difficulty in selling causes a knock-on problem:

- to sell the concept history shows that the risks of bicycling have been exaggerated, to produce the "need";
- while the protection offered has also been overstated, to produce the "solution."

Putting aside any moral questions for the moment, which are dealt with later under *Equity*, this approach is fundamentally flawed. Before this strategy is adopted the possible benefit from bicycle helmets is small at best, and its adoption increases the negative effects of *risk compensation*[1] as people are compensating against an overstated level of protection, seriously impacting that possible benefit. This has led to some authorities [Hillman] arguing against even the *promotion* of bicycle helmets.

Recently at one of the LTSA's Christchurch meetings on the development of pedestrian and cyclist promotion strategies some of the failures of the bicycle helmet legislation campaign were acknowledged. An LTSA spokesperson stated that due to the negative aspects they could never again run a similar campaign again. Many of the problems the LTSA now have to solve to meet the Government's targets of increasing bicycle use are ones that were created by this campaign as detailed above. However the biggest problem, the legislation, is still being supported despite its failure and against all logic.

Internationally it is common for members of the medical profession, and their national organizations, to speak out against bicycle helmet legislation due to its negative effect on health. Until recently this was the case in New Zealand, though many expressed concerns in private. However recently Dr D Keown of Wellington was profiled in the Dominion Post [Dominion] and has now initiated a nationwide campaign to have the legislation repealed.

The cost of bicycle helmet legislation has been shown in many studies to be excessive, negating any benefit, while some studies have found some benefit, though usually much smaller than predicted. To pass a law requiring the use of a safety measure requires a compelling case showing the benefits of the measure outweigh any other concerns. The mandatory wearing of bicycle helmets at best fails this test, due to the mixture of results, and at worst is a health and safety disaster.

Some Example Research Results

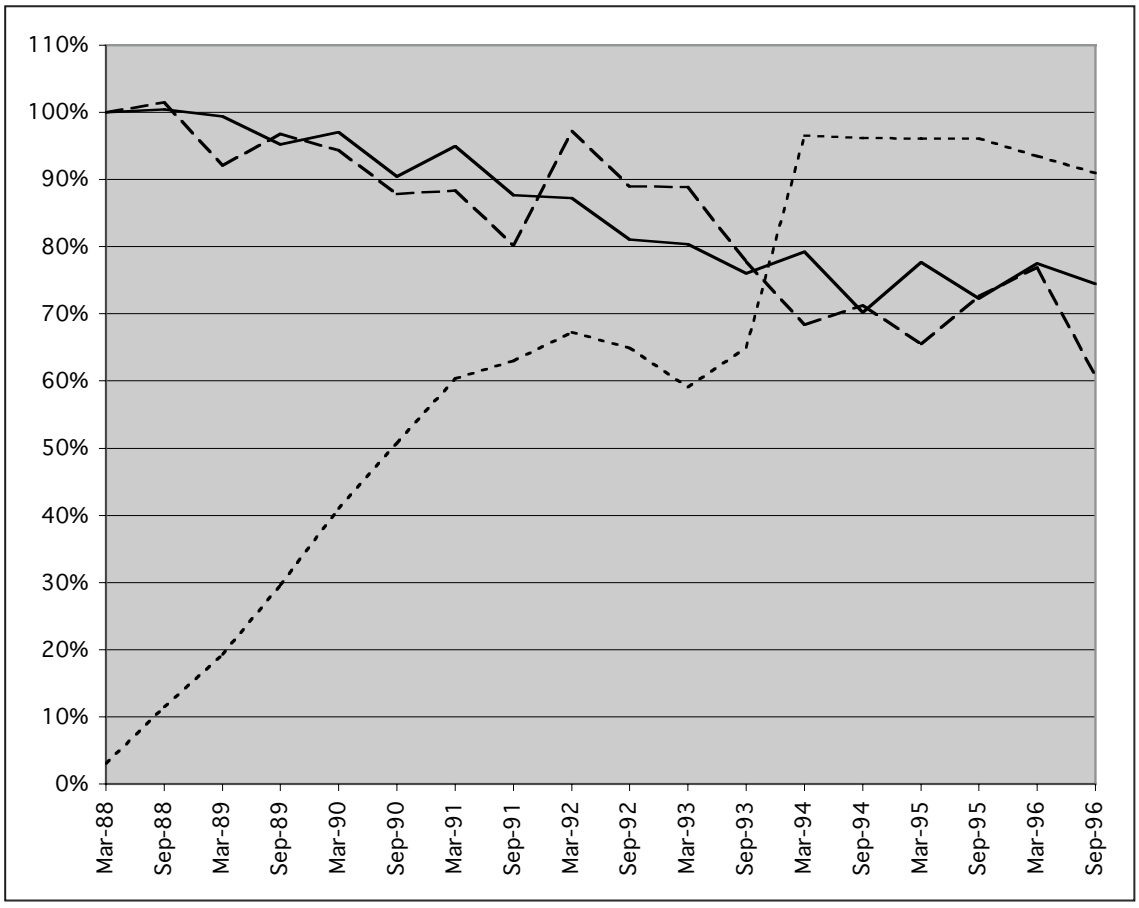
The body of research on this subject is too large to cover completely here. We will concentrate on just two New Zealand related cases.

First, in "The Bicycle Helmet Legislation: Curse or Cure?" [Perry01] the head injury rates for bicyclists and the whole population were compared to the bicycle helmet-wearing rate. This research used the same data used by "Head Injuries to Bicyclists and the New Zealand Bicycle Helmet Law" [Scuffham00] often quoted in support of the legislation. Perry compared:

- the relative change in head injury rates for bicyclists;
- the relative change in head injury rates of the population as a whole, of which bicyclists form only a small percentage; and
- the wearing rate of helmets by bicyclists

over a period encompassing the introduction of the bicycle helmet legislation. The following graph shows the results:

[1] An unavoidable response to safety measures in which people take greater risks due to feeling "safe."



The increasing data line shows helmet-wearing rate,
the two falling data lines show %age change in head injury rates,
but which is for cyclists and which for the overall population?

This graph clearly shows that there is no obvious benefit accruing to bicyclists as a result of helmet wearing, indeed it is not immediately obvious which data line refers to bicyclists and which to the whole population. Furthermore the head injury rates show no direct correlation to the helmet wearing rate and indeed both sometimes fall and rise at the same time when the theory says they should move in opposite directions.

A standard statistical analysis shows a high correlation (-0.91[2]) between the wearing of helmets by bicyclists and the reduction in head injuries of bareheaded members of the population. This correlation is actually better than that between the helmet wearing rate and bicyclist head injuries (-0.87). However the correlation between bicyclist and population head injury rates is also high (+0.84). This clearly indicates that other factors are responsible for the drop in head injury rates and the apparent relationship to the increase in bicycle helmet wearing rate is spurious.

Furthermore the paper shows that once the roughly 20% drop in cycling [LTSA] over the same period is considered, which is a major health cost, the legislation is seen to be a health and safety disaster.

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[2] Correlation values range from +1 to –1. If two quantities are perfectly correlated and both increase or decrease together the value is +1, if one decreases while the other increases the value is –1. A value of 0 means the quantities are unrelated.

Secondly the most recent research on the effect of the legislation in New Zealand [Taylor] shows that rather than achieve the savings predicted when the law was proposed the costs have substantially outstripped the benefits. Further a brief review of that paper [Perry02] indicates that the overall cost has been underestimated as it omits costs arising as a result of the campaign. The review comments that the mandate of the LTSA is to achieve "safety at reasonable cost", not "a lack of safety at high cost."

We could detail other research, for example [Povey] claims that the legislation resulted in a 28% reduction in adult bicyclist head injuries. However [Robinson01] shows that the results were due to flaws in the method used.

The pattern is clear; while some research has claimed some positive results there is plenty that shows the opposite, often correcting prior positive research. Indeed the seminal paper [Thompson] that originated the movement for bicycle helmet legislation has long ago shown to be flawed [Robinson96]. To have a law requiring the use of a safety intervention requires significant positive research, mixed research or research showing failure is nowhere near enough.

On reflection it is not at all surprising that the law has not worked. Bicycle helmets are designed at best to offer some protection when a bicyclist falls off a bicycle unaided by anything other than gravity. However such incidents are not the major cause of bicyclist injury, and certainly not of serious injury. Therefore bicycle helmet legislation, even if it had worked, was an attempted solution to the wrong problem.

Equity Issues

The theory proposing the use of helmets as a way of reducing head injuries in a population is not limited to bicyclists. Indeed the theory argues that seatbelted, airbag protected, motor vehicle occupants should also wear helmets and that greater benefits would accrue if they did compared to bicyclists [McLean]. This raises serious equity issues, and some have argued potential human rights issues. Given a safety intervention measure which applies to a number of categories of road users, it is clearly inequitable to pick just one of those categories and require them by law to use the safety measure. When the group that you pick is not the one that would benefit most, and is the one using a health-promoting mode of transport, it is hard to view it as anything other than outright discrimination.

Overseas some proponents of the bicycle helmet legislation also wear helmets in their cars [Adelaide]. In New Zealand none are known to have made this choice, yet insist that others must be required to do so by law. Clearly to continue to support the bicycle helmet legislation threatens the very credibility of New Zealand road safety measures.

There Are Solutions Which Work

Capping the above is the knowledge that in other countries; such as Denmark and The Netherlands; higher levels of health and safety have been achieved [Wood]. These countries have rejected the use of helmets as a bicyclist safety measure, and have even gone as far as referring to bicycle helmet legislation as a "disease" [Mondial]. This means that the Government's adoption, and continued support, of bicycle helmet legislation has denied, and continues to deny, New Zealander's the higher levels of safety achieved by the other approaches.

It Is NOT Simply About Helmet Wearing

Before concluding we briefly address some common misconceptions:

- These people just don't want to wear helmets.
- These people wish to stop others wearing helmets.
- These people don't care about safety, they want more Aaron Oaten's.

Unfortunately comments such as the above are common, and often pushed by those supporting the bicycle helmet legislation. They are all wrong.

- One of the leading Australian researchers who opposes bicycle helmet legislation has been reported to sometimes wear a helmet in her car. This is not about individuals not wishing to wear a helmet, but about a so-called safety intervention that at best fails and at worst decreases health and safety.
- Nobody is trying to stop people choosing to wear bicycle-style helmets; on their bikes, when in a car, or even when walking; if they so choose. What people do want though is that the truth about the level of protection offered is made clear; see for example the quote from the British Standard above. To allow the current misinformation to continue will only serve to increase the risk.
- The reason people campaign against the legislation is because they do care about safety. What happened to Aaron Oaten was a tragedy; it was also by all reports a freak accident that proves nothing. Measures have to be tested against their effect across a whole population, and bicycle helmet legislation has consistently failed that test. It is also sad that people who should have known better supported Mrs Oaten in her pursuit of the wrong solution, when they could have easily encouraged her to campaign for real road safety improvements. We can only imagine what a great place to live New Zealand might be if Mrs Oaten's considerable and genuine energy had been targeted at measures which work.

Conclusion

Today a child bicycling in The Netherlands, wind in their hair, is safer than a New Zealand child, head encased in plastic foam, riding their bicycle. This has nothing to do with a "unique" New Zealand environment. Gravity, wind resistance, friction, mass of cars, etc. are all pretty much the same, even the geography would be familiar to many New Zealanders, including the accompanying winds! Instead it has everything to do with the Dutch putting safety before rhetoric.

Should we continue this disparity? Certainly not.

As shown above, once the full picture is considered it is clear that the mandation of bicycle helmet wearing has no place in a strategy whose aim is to increase health and safety.

A vital step towards improving the health and safety of bicyclists in New Zealand is the removal of this legislation, as long as it remains in place it will continue to undermine safety efforts and to discriminate unfairly against bicyclists. Hence the recommendation that Part 11 cl 11.9 be deleted and replaced by "SR 1976/227 r 38A is revoked"

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