Submission 54

**Cycling in traffic:** 







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# **1. Executive Summary**

There are health, congestion, environmental and economic benefits when replacing car trips with bicycle trips. To get those benefits more people have to ride to work, schools, train stations or shops instead of using their cars. Many people who are healthy, have access to a bicycle and live within cycling distance of their destination choose to use their cars because they are afraid of using a bicycle in traffic. The cycling academic John Pucher talks about riding a bicycle as "a benign activity carried out in a dangerous environment", with the benefits of cycling outweighing the risks.

The cyclists we see mixing with traffic are the experienced commuters and the experienced recreational riders in groups. They are the least vulnerable of all the people of bicycles, and will ride irrespective of external circumstances such as weather or traffic, but only account for 1% to 4% of the population. Most of the nearly 20% of Australians that rode a bicycle last week did so for recreation, and many of them are fearful of sharing roads with motorised traffic. This large segment, already used to cycling, would use a bicycle to go the shops, school, train stations or places of employment if they feel it is safe.

Amongst the general car driving public there is a perception that cyclists are using roads irresponsibly, with the "running" of red lights the main annoyance. But only a small proportion of people on bicycles behave in an inconsiderate fashion. For instance in Melbourne (the cycling capital of Australia) six times more pedestrians ignore red lights than cyclists, without attracting any bad publicity. In European cities people on bicycles are generally more responsible and compliant traffic participants, demonstrating that in places where cycling is part of mainstream traffic, cyclists are more likely to obey traffic rules.

Drivers see the key function of streets as providing transport and belonging to motorised traffic that can easily accelerate to 50 kph plus and go up grades without slowing, and consider the cyclists presence on the road as annoying. This annoyance can lead to dangerously close passing, creating circumstances were crashes may more easily happen. Prominent reasons why people do not ride a bicycle for transport are: unsafe road conditions, the speed and volume of traffic, and the lack of segregated infrastructure. The biggest fear of on-road cycling commuters is to be run over by a car travelling in the same direction. Although only a small proportion of injured cyclists admitted to hospitals were involved in a collision with a motor vehicle, they are normally the more severely injured, and about 90% of cyclist deaths involve a motor vehicle. A legalised safe passing distance would make close overtaking less likely.

Opponents of a legalised passing distance incorrectly cite a study from Baltimore that examines the effects of a 3-foot legalised passing distance (Love et al., 2012), saying that it is not effective. But the data in the study strongly suggests that a legalised passing distance works: in the study there was not a single case where a car overtook a cyclist with less than 2'6" clearance.

To mitigate the fear that people on bicycles have when they are riding in traffic, "share the road" campaigns target road user behaviour, often trying to improve both motorist and cyclist behaviour. There are many examples of behaviour change campaigns that seek to benefit vulnerable road users in Australia and overseas. Some of the slogans are: "Cool it, Bell it, Slow it, Share it", "We can all share the road safely, please give us a chance", "We just have to learn to get along", "We all share the road, so respect cyclists" etc, etc.

A campaign that benefits people on bicycles has to confront the issue of cars and car drivers. It has to aim to change the mindset of car drivers so that they can accept that lower speed in suburbs, a legalised safe passing distance and money spent on separate infrastructure for people on bicycles are desirable, necessary and ultimately in their favour.

A legalised safe passing distance would be more useful if it were supported by a law that ensures a safe environment for all vulnerable road users. The Vulnerable User Law can be explained quite simply in the legislation—the person operating the heaviest vehicle is responsible to operate their vehicle in such a manner that they are ensuring the safety of the more vulnerable users with whom they are sharing the road. Simply, if motorist hits a cyclist, the motorist is at fault; if a cyclist hits a pedestrian, the cyclist is at fault.<sup>1</sup>

The strongest approach for Australia would be the legislation of a safe passing distance, followed by a campaign that shows motorists how vulnerable people of bicycles are, explains the need for a generous passing distance, and makes motorists aware of the benefits cyclists bring to the community in terms of environment and congestion.

### 2. Introduction, context, and cyclist behaviour

The massive and continuous benefits of replacing car trips with other modes of transport is undisputed, and using a bicycle to replace car trips yields health, congestion, environmental and economic benefits.

Research on the **health benefits** of commuting cycling based on intervention studies among workingage adults show consistent improvements in cardiovascular fitness and some improvements in cardiovascular risk factors (Oja et al., 2011). Studies that claim health benefits due to cycling in the areas of all-cause mortality, coronary, heart disease morbidity and mortality, cancer risk, and overweight and obesity are sometimes questioned. The **economic benefits** of cycling have been the subject of a report by Dr. Ian Ker. He calculates that each kilometre cycled brings 25 cents of benefits, some to the individual, but most of it to the community, and puts the benefit to cost ratio (BCR) for cycling infrastructure at 3.4 to 1, compared to a BCR of 1.8 to 1 for public transport infrastructure, and less than 1 to 1 for the building of roads. If one third of short car trips (less than 3km) were replaced by bicycle trips, it would reduce Australian household **emissions** by 4% (Cycling\_Promotion\_Fund, 2008).

The benefits of active travel substantially outweigh risks due to accidents or inhaled pollution (Yang, Sahlqvist, McMinn, Griffin, & Ogilvie, 2010). In a large Danish cohort followed over 15 years a 39% reduction in all-cause mortality was observed in those who cycled to work (Baumann & Rissel, 2009). Regular exercise also improves mental health and academic achievement.<sup>2 3 4</sup>

<sup>&</sup>lt;sup>1</sup> As suggested in a report by Alan Voorhees for the Department of Transportation of New Jersey (USA) <sup>2</sup> European Health ministers suggest that the obesity epidemic is caused by physical inactivity (along with unhealthy diet). They see the obesity epidemic "one of the most serious challenges to public health in Europe" (Jacobsen, Racioppi, & Rutter, 2009)

<sup>&</sup>lt;sup>3</sup> School Children that are aerobically fit and have a healthy Body Mass Index (BMI) do better in reading and mathematics (Castelli, Hillmann, Buck, & Erwin, 2007)

To get those benefits more people have to be encouraged to ride to work, schools, trains stations or shops instead of using their cars. Many people who are healthy, have access to a bicycle and live within cycling distance of their destination choose to use their cars or public transport because they are afraid of sharing the road with people driving cars (according to the RAC 91% of people currently cycling fear sharing the road with motorists). A quarter of people who drive to train stations in Perth would walk or cycle if a safe and attractive environment was to be provided (Batini, 2010)<sup>5</sup>. Providing a safe road environment to get to public transport would free expensive car park spaces for people who live too far away to walk or cycle.





Source: Cycling Promotion Fund and National Heart Foundation of Australia 2011, Riding a Bike for Transport, table 11.

The four most prominent reasons why people do not ride a bicycle for transport are: unsafe road conditions, speed and volume of traffic, don't feel safe riding, lack of segregated infrastructure.

The biggest fear of on-road cycling commuters is to be run over by a car travelling in the same direction (the crash and injury risks to cyclists are examined in section 4). To mitigate this fear, "share the road" campaigns target road user behaviour. To deal with the often voiced perception that cyclists are using roads irresponsibly, many of these campaigns seek to change both cyclist and driver behaviour.

<sup>&</sup>lt;sup>4</sup> Based on a meta-analysis of 37 studies dealing with depression and exercise, Craft concluded that "exercise is a behavioural intervention that has shown great promise in alleviating symptoms of depression (Craft & Perna, 2004)

<sup>&</sup>lt;sup>5</sup> A Queensland study into the economic benefits of active transport has found that 42% of survey respondents felt a safer environment would encourage more cycling (Fitzgibbons & Hand, 2009)

"Sharing the road" as a concept implies that all road users have a similar stake and a similar attitude to safety, and encounter similar problems in the road environment. This is a misconception. Pedestrians and cyclists generally do not inflict serious injuries to people in cars. Therefore the hierarchy and severity of injuries has to be considered when devising a behaviour change campaign that aims for a safer environment for vulnerable road users.

In this context it is useful to examine the attitudes that are exhibited when bicycles interact with other road users.

#### a. Cyclist behaviour and attitudes around Cars

People driving cars have valid examples of irresponsible road use by people riding bicycles. The most frequent infraction used as an example is cyclists ignoring traffic lights. In the popular press and on blogs the impression is created that ALL cyclists run red lights. But in Melbourne (the cycling capital of Australia) six times more pedestrians ignore red lights than cyclists("Pedestrians as hazards," 2011), without attracting any bad publicity.



Only a very small proportion of cyclists are non-compliant at traffic lights. In a study that used hidden cameras at ten locations in Melbourne and analysed the behaviour of 4225 cyclists, only 6.9% were ignored the red light, and no collisions were observed (Marilyn Johnson, Newstead, Charlton, & Oxley, 2011). Many of the non-compliant cyclists executed a safe left turn, a manoeuvre that is legal in other countries.

Recently the consultant Dr. Alan Davies wrote a series of articles in Crikey examining the traffic behaviour of cyclists. He contends that the fundamental problem motorists have with cyclists using streets is they are too slow – they hold drivers up. Drivers see the key function of streets as providing transport and belonging to motorised traffic that can easily accelerate to 50 kph plus and go up grades without slowing. Most drivers expect to travel at or close to the maximum permitted speed. It's regarded as the appropriate speed and anything less is an imposition. Research shows that some car drivers consider the cyclists presence on the road as annoying (Basford, Reid, Lester, Thomson, & Tomie, 2002), whilst they perceive their own car as a protective, safe cocoon (Hiscock, MacIntyre, Kearns, & Ellaways, 2002) (cited by (Chaurand & Delhomme, 2013)). Cyclists are a problem for motorists because they require them to slow down, however briefly, and take extra care, and drivers feel they are doing cyclists a favour if they wait patiently for an opportunity to overtake safely. Many begrudge cyclists the road space. Sensation seeking or anger increase the likelihood of risky driving behaviour (Delhomme, Chaurand, & Paran, 2012), with anger being a stronger indicator. Anger is closely related to frustration (Berkowitz 1993), and a driver being slowed down by a person on a bicycle on the road can conceivable experience annoyance, frustration or anger, leading to unsafe driving. This is specially risky for people on bicycles, as they have no protective cocoon, are of course unaware of the emotions of the person driving the car, and cannot avoid their physical environment. Even if cyclists could be induced en masse to strictly comply with red lights, it's not clear it would make much difference to how they're treated by motorists (Davies, 2013b).

There is a school of thought that proposes that when cycling becomes a mainstream form of transport, the behaviour of cyclists should and will improve(Burkeman, 2013; Goodyear, 2013). In Perth, cycling for transport is far from being mainstream, and many car drivers see a person on a bicycle as something strange, as "the other". These strange cyclists are exercising, they are in Lycra, they subscribe to "Cycle Chic", they are bike couriers etc. In this view that (often supported by newspapers and letters to the editor) cyclists are NOT normal commuters. This is borne out by statistics that put commuting bike share in Perth at between 1.7% and 3%, (depending on sources used), compared to well over 20% in many European cities. In European cities cyclists are generally more responsible traffic participants, demonstrating that in places where cycling is more common, cyclists are more likely to obey traffic rules.

Dr. Alan Davies suggests that Cyclists who ride on roads aren't representative of other road users or of the broader population. They're predominantly males and mostly younger ones at that. Moreover, they tend to be toward the risk-taking end of the spectrum, as the ones who are more risk-averse perceive cycling in traffic as inherently dangerous and avoid it (the segmentation of cyclists is explored in more detail later). There's a small sub-set of motorists who're risk-takers too, but in the case of cyclists risk-takers constitute a larger proportion of those who currently ride on roads, supporting the misguided perception that all cyclists are risky rule breakers.

It would be a mistake to think that the current cohort of cyclists is typical of the next wave waiting in the wings. These potential on-road cyclists are likely to be more risk-averse and therefore more inclined to 'behave' if they can be induced to take to the streets. But unless safety improves significantly the next wave of on-road cyclists might only be a tiny ripple(Davies, 2013c).

#### b. Cyclists and Pedestrians

From a pedestrian point of view, paths and foot paths should be the exclusive domain of people on foot. Encountering only pedestrians on a path appears safer than if the path is shared with cyclists, and the main reason is the difference in speed. Pedestrians, some of them in the company of children and pets, are not used to, and should not have to learn, to anticipate the possible interactions with faster path users.

Cyclists have a different perspective, as has been pointed out in *Crikey:* "So far as many cyclists are concerned, footpaths are their safe haven from dangerous roads, where there's the ever-present risk they'll be seriously injured, even killed. They're at much greater risk of critical injury from cars than pedestrians are from bicycles" (Davies, 2013a).

Unfortunately cyclists are often intolerant when it comes to sharing space, with the commuting cyclist on his way to work more impatient than a person cycling to the local shops. The architect, lecturer and author Steven Fleming suggests a fundamental misunderstand in the design and use of urban space, where in some cases segregation is a must, whilst in other cases integration and tolerance should be automatic. He refers to cycle tracks (our PSPs) as axis, and shared spaces as nodes. "Cycle tracks belong along axes, not nodes. Nodes (which can be elongated) are destinations and have lots of people just hanging around, zigzagging, stopping, walking backwards, etc... However, the message a bike lane sends us when it doesn't stop upon reaching a node, is to maintain our speed. Precisely when we ought to be swallowing that pill we are so ready to give drivers, we blithely ignore the people around us and licence ourselves to hit them or honk them if they step on our lane. A shared pedestrian treatment would tell us to slow down and graciously weave our way through, politely ringing our bike bells"(Fleming, 2013). Eventually we will need to move to cycling only infrastructure for the commuters travelling the longer distances, but when paths or other spaces are to be shared, they should be designed in a self explaining fashion so our usage patterns are adjusted automatically.

#### 3. Problems for cyclists in traffic

In Australia, cars are the main mode of transport for and leisure work<sup>6</sup>.

Non-motorized transport activity varies widely between different countries and cities, as illustrated in figures 2 and 3.



Figure 2 Mode Split By Country (Bassett, et al. 2008)

The implications of high car usage permeate our society, and the high spending on road infrastructure is one of the results. There is a strong inverse correlation between volumes and speed of traffic and levels of cycling (Jacobsen, et al., 2009). The traffic mix on the road has safety implications; countries with the highest car usage have a highest rate of cycling fatalities (Jacobsen, 2003)<sup>7</sup>. The most frequent explanations why people do not cycle involve the danger when cycling on roads, and the lack of infrastructure to cycle on. Because most single vehicle bicycle crashes are not reported (Elvik & Mysen, 1999), it is difficult to know how dangerous cycling really is.

Most people do not ride bicycles for safety related reasons, and the danger imposed by motorised traffic is the most important issue in cycling safety because it discourages people from cycling. "Most of the risk of severe injury while cycling is not intrinsic to the activity; motorists impose it on cyclists. Cycling is a benign activity that often takes place in dangerous environments" (Jacobsen & Rutter, 2012).

Cyclists suffer the most severe consequences in collisions with other road users because they cannot protect themselves against the speed and mass of the other party. Therefore, to increase cycling participation (which makes cycling safer), the behaviour of car drivers has to be addressed

Non-motorized travel varies significantly between wealthy countries.

<sup>&</sup>lt;sup>6</sup> Car use in European countries is about 40% to 60% of all trips, whilst in Australia it is about 90% (Bassett, Pucher, Buehler, Thompson, & Crouter, 2008). Based on figures by the Australian Bureau of Statistics, cycling as a means of getting to work is about 1.2% to 1.7% of total trips to work. We see cycling numbers increase, but the participation rate is only shifting by fractions of a percent.

<sup>&</sup>lt;sup>7</sup> Netherlands has about one cycling fatality per 100 million km travelled vs. USA with five cycling fatalities per 100 million km travelled.

#### 3.1 A safe legalised passing distance as part of the solution?

A high percentage of serious injuries and deaths of cyclist being caused by cars driving in the same direction suggests that a legalised safe passing distance would be the first step in alleviating the justified fears of a commuting cyclist when he hears a car approaching from behind, colloquially referred to as "fear from the rear". A typical accident description is in the footnote.<sup>8</sup>

A study in Melbourne that analysed 127 hours of helmet-cam footage concluded that car drivers were at fault in 87% of incidents with cyclists, with sideswiping the most frequent type of incident (M. Johnson, 2010). Based on that study a cyclist using public roads would expect some sort of incident every three hours.

We know that 14.6% of all road users admitted to hospitals as a result of road vehicle crashes in Australia in 2006-7 were cyclists (Henley & Harrison, 2009), which is well above the cycling participation rates. Minor injuries not involving a motor vehicle are much more frequent (72.3% in WA)<sup>9</sup>, but tend not to discourage cycling, and are therefore less relevant as a health issue (Jacobsen & Rutter, 2012), and less relevant in behaviour change programs.

Although only a small proportion of injured cyclists admitted to hospitals were involved in a collision with a motor vehicle<sup>10</sup>, they are normally the more severely injured, and about 90% of cyclist deaths involve a motor vehicle(Nicaj et al., 2009). A more recent report (Burgess, 2013) examined the 122 cycling deaths in Britain in 2012, and concluded that 106 (87%)were due to a collision with a motor vehicle (with some of the remaining deaths still under investigation, which means that the figure of 90% can be used with some confidence). In about a quarter of fatal cyclist accidents, the front of the vehicle hit the rear of the bicycle.

A Canadian Study confirmed that apart from intersection crashes between bicycles and cars, the second most frequent cause for police reported car/bike collisions was a bicycle being hit by a car travelling in the same direction.<sup>11</sup>.

Opponents of a legalised passing distance frequently, gleefully and incorrectly cite a study from Baltimore that examines the effects of a 3-foot legalised passing distance (Love, et al., 2012). The authors described their findings as a failure of the law because there was some overtaking of bicycles

http://www.rospa.com/roadsafety/adviceandinformation/cycling/facts-figures.aspx)

<sup>&</sup>lt;sup>8</sup>The West Australian June 16, 2013, 3:08 pm. Major Crash Investigators are calling for help from the public following a serious crash in Pinjarra about 6.39pm yesterday. It occurred when a cyclist travelling north-west on Pinjarra Road, Pinjarra was struck from behind by a black Holden Commodore sedan. The cyclist received life threatening injuries and was airlifted to Royal Perth Hospital where he remains in a serious but stable condition in intensive care. Police are seeking witnesses to the crash or anyone who may have seen the cyclist travelling on Pinjarra Road before the crash. The rider is a heavy built man and was towing a small bicycle trailer.

<sup>&</sup>lt;sup>9</sup> Police reported UK cyclist casualties for 2011 show that out of 19215 reported crashes, 16% were either killed or seriously injured, and 84% of these involved a motor vehicle (Source

 <sup>&</sup>lt;sup>10</sup> According to the WA Hospital Morbidity Data System about 27.5% of Hospital Admissions involve a motor vehicle, whilst in other studies the numbers are as low as 15% (Rivara, Thompson, & Thompson, 1997).
 <sup>11</sup> The study examined 2572 police reported car/bike collisions in Toronto. 12% of collisions occurred at intersections, 11.9% of collisions were the result of a car overtaking a bicycle.

with less than the legally required distance<sup>12</sup>. A look at the data in the study strongly suggests a different conclusion: in a sample of 586 passes, between 77% and 83% of the cars gave more than 3 feet of clearance when overtaking a bicycle, (depending on the lane markings used). In the remaining cases overtaking was at exactly three feet or so little below that the included graphs show the lesser distance as touching the three foot line. There was not a single case where a car overtook a cyclist with less than 2'6" clearance.

The existing Australian Road Rules including Rule 144, do not protect bicycle riders when being overtaken by drivers. Drivers are permitted to make judgement calls regarding a 'sufficient distance to avoid a collision'.

A legalised safe passing distance provides absolute and practical clarity<sup>13</sup>. It:

- Recognises bicycle riders are physically vulnerable and need the protection of space
- Provides drivers with a clear, easily recognised measure when overtaking bicycle riders otherwise they must slow down and wait
- Reduces the risk of bicycle rider-driver crashes, and bicycle rider crashes resulting from being side-swiped (but not hit) by motor vehicles
- Is enforceable; it allows a law enforcement officer or witness to readily observe a driver's actions
- Would give consideration for a graded approach for higher speeds and very low speeds, though standardised legislation is more readily understood
- Will improve safety for bicycle riders and provides bicycle riders with space in which to move to avoid obstacles such as glass, pot holes etc that motorists may not be aware of
- Acknowledges bicycle riders are legitimate road users
- Will ultimately reduce bicycle rider fatalities and serious injuries.

A legalised safe passing distance provides strong foundations to build upon. Many American states have used it as the first step in developing additional legislation to provide increased safety to the pedestrians and cyclists in their respective states. Such a law would be a first measure, in a series of measures, to educate and increase awareness of both pedestrian and cyclist safety and the rights and responsibilities of all road users. A legislated safe passing distance is not the end, but rather part of the means, toward establishing a bicycle and pedestrian-friendly state.<sup>14</sup>

As a two wheeled vehicle, bicycles are physically unable to travel in a completely straight line. To allow for unexpected directional adjustments, car drivers should leave sufficient clearance when overtaking bicycles.

<sup>&</sup>lt;sup>12</sup> Quote: "Cyclists in Baltimore, MD were routinely passed at a distance of three feet or less while cycling during morning and evening commutes, which indicates that the three-foot law is not being followed and cyclist safety may be compromised".

<sup>&</sup>lt;sup>13</sup> These recommendations are from Amy Gillett Foundation website

<sup>&</sup>lt;sup>14</sup> As suggested in a report by Alan Voorhees for the Department of Transportation of New Jersey (USA)

# 4. Not all cyclists are the same

Only a small proportion of people riding bicycles interact with car drivers, and even less come into conflict with them. Roger Geller(Geller, 2006) suggests four categories of cyclists:



This segmentation relates to people who use a bicycle for transportation, and many (except perhaps the "no way, no how" segment) will also ride for recreation or sport.

In 2011 the work of Roger Geller was confirmed in an extensive study (Dill, 2012). The Portland State University interviewed 900 people riding bicycles. They were asked to respond to the question "If or when I ride a bike, I'm concerned about being hit by a motor vehicle" and not surprisingly only 39% of the "strong and fearless" group strongly or somewhat agreed, compared to 87% of the "no way, no how" group. 93% of the "strong and fearless" group are between 18 and 34 years old, 80% of them are male. These findings are discussed in more detail on the Bike Portland website (Maus, 2012).

Bicycle Network also segments cyclists into four groups – experienced and inexperienced commuters, and experienced and inexperienced recreational riders (see next page).



The cyclist we see on the road, and the cyclist subject to discussion in the news (see the DVD that is part of this report), are the experienced commuters and the experienced recreational riders in groups. They are the least vulnerable of all the people of bicycles, and will ride irrespective of external circumstances such as weather or traffic, but only account for 2% to 7% of the population. But we know that about 20% of Australians rode a bicycle last week, and they would mostly be classified in the "moderate intensity" group. This large segment, already used to cycling, will use a bicycle to go the shops, school, train stations or places of employment if they feel it is safe.

Emma Cohlmeyer explores the social infrastructure supporting cycling for transportation and identifies urban design, urban rules and policies and norms of behaviour as the cornerstones to foster cycling as a healthy, clean and efficient transport mode (Cohlmeyer, 2012). Any behaviour change based campaign will need to address the norms of behaviour. The other two cornerstones are addressed by infrastructure funding and by legislation. Ideally target markets are segmented by age and gender. Accurately targeted campaigns are more likely to provide consistent positive effects (Yang, et al., 2010). Younger people will relate to different messages compared to older people, and the interests of people vary depending on what transport choices they normally make or are forced into. If we want to get kids riding to school, the messages need to consider the needs and fears of the parents. Another consideration is the fear of women to cycle.

## 5. Discussion

A problem that is relevant when we want to influence the behaviour of people driving cars and public perception is the language that is used when cyclist crashes are reported in the media. Especially when children are involved normal childhood behaviour is incorrectly regarded as irresponsible, instead of examining if the motorist was, for instance, driving too fast for the situation. The blaming of children in such situations avoids addressing the real causes – dangerous road design and dangerous driver behaviour (Roberts & Coggan, 1994)

In the context of a behaviour change campaign it is important to understand the differing collision patterns between children and adults. Because children on bikes ride on the footpath, they are vulnerable to cars backing out of driveways(Williams, 1976)<sup>15</sup>, whilst adult cyclists are more likely to be run over by a car driving in the same direction or by a car turning across their path<sup>16</sup>.

The strongest approach would be the legislation of a legalised safe passing distance, with a campaign that shows motorists how vulnerable people of bicycles are, explains the need for a generous passing distance, and makes motorists aware of the benefits cyclists bring to the community in terms of environment and congestion.



<sup>&</sup>lt;sup>15</sup> Painfully demonstrated by the death of a eleven year old boy in Nollamara on 17.6.2013

<sup>&</sup>lt;sup>16</sup> The most common crash in which cyclists are fatally injured is the result of being hit by a car travelling in the same direction (Australian\_Transport\_Safety\_Bureau, 2006). To counter the common belief that cyclists are risk takers and thus "deserve" to have crashes, Schramm (2010) shows that traffic violations are recorded against 85.4% of drivers that were at fault in bicycle-motor vehicle crashes

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