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Registered Charity No. CC36909

CAN Policy:

Wearing high-visibility (e.g. fluorescent, reflective, bright-coloured) clothing when cycling may help other road users to perceive you (and sooner) and take appropriate actions. CAN encourages people to wear such clothing where appropriate when cycling, especially in low-visibility or busy road environments and believes that it may contribute to improved cycle safety.

However CAN is opposed to mandatory requirements for high-visibility clothing, due to:

- An absence of unequivocal evidence that the use of high-visibility clothing (and more specifically, its mandatory requirement) improves road safety.
- The likely negative effect it would have on encouraging cycling for everyday trips.
- Difficulties in enforcing such a law.

Other factors are more important influences on cycling safety, such as road design, traffic speeds, cycle positioning on the road, lighting and awareness of other road users.

CAN believes that these factors should have a higher priority than requiring high-visibility clothing, because they are more likely to be effective.

Background:

Wearing high-visibility (e.g. fluorescent, reflective, bright-coloured) clothing when cycling may help other road users to perceive you (and sooner) and take appropriate actions. CAN encourages people to wear such clothing where appropriate when cycling, especially in low-visibility or busy road environments and believes that it may contribute to improved cycle safety.

However CAN is opposed to mandatory requirements for high-visibility ("hi-vis") clothing, for a variety of reasons:

- There is inconclusive research evidence with regards to the effect on crash risk of wearing hi-vis clothing (see below). There is evidence that suggests that the movement of a cyclist relative to another road user is more relevant to their detection than what they are wearing.
- More specifically, there is no evidence worldwide with regards to the efficacy of a mandatory hi-vis clothing law for people cycling.
- Requiring hi-vis garments when cycling would imply that cycling is a "special" activity requiring special equipment, rather than just an ordinary everyday activity, like walking.
- People would be less likely to choose to cycle for everyday trips, because of the extra inconvenience of wearing a hi-vis garment, and concern about its effect on their personal clothing style. This would have significant adverse impacts on the general health of our population.

- Cycling would be perceived as a riskier activity than it actually is, because of the requirement to wear more "safety equipment", regardless of the cycling environment. The relative risk of someone cycling on (say) a high-speed road at night-time is quite different to the risk of cycling on a low-speed local street during the day; yet the law would apply in all cases. Again, this would have an effect on the take-up of cycling.
- Enforcement of such a law requires a definition of what constitutes hi-vis clothing (e.g. does a yellow or white top count? Does it need fluoro or reflective elements? How big must the hi-vis components be? Does it differ for day or night?) And this is open to mis-interpretation and abuse. It also requires a determination of where the mandatory law would apply (e.g. on road carriageways only? Adjacent paths? Pathways away from roads?), which may cause difficulties practically speaking if someone is riding on a mix of facilities.
- The visibility of cyclists in low-visibility situations (e.g. night, fog, twilight) is already covered by the legal requirement to have good lights and reflectors on your bike in these situations. Having other additional cycle visibility aids, such as reflectorised tyres and spoke reflectors, may be more effective to improve the visibility of people cycling, especially from side-on.
- Such a law would place the onus on those who are usually the victims in crashes, rather than requiring other road users (e.g. people driving) to take more responsibility and care when travelling.
- In a cycle crash, the wearing or otherwise of hi-vis would become an immediate factor identified by other road users, the Police and media, with the potential for it to be seen as "the reason" why the crash occurred, irrespective of other circumstances. This has implications both in terms of Police charges and insurance.
- High-visibility gear would need to be widely available in a variety of sizes and styles/seasons at a reasonable price for all people in New Zealand wishing to cycle.
- Many people in New Zealand only occasionally cycle (e.g. less than once a month); yet they would still be required to have available a hi-vis garment should they have an unexpected opportunity to cycle somewhere. Similar obligations would be required by tourists to New Zealand. In practice, it is likely there would be widespread disobedience of such a law in New Zealand, especially for short local trips.

It is accepted that wearing hi-vis garments is a requirement of many work places (e.g. road works, construction, postal delivery, shopping car parks). However, that is a Health & Safety condition of employment, for the protection of both employers and employees which is quite different to private activities often undertaken in the same locations (e.g. pedestrian crossing a road, customer walking across a car park).

It is important to also recognise the differences between fluorescent clothing (which shows up well under UV light like sunlight) and reflective clothing (which shows up well under reflected lights such as headlights and street-lights). Thus, hi-vis garments appropriate for daytime riding may not be appropriate for night-time riding (and vice versa). The picture is further complicated by other brightly-coloured clothing that may not meet either requirement yet still be quite conspicuous.

A recent review of cycling fatalities in NZ between 2006-2012 (Koorey 2013) found that (of those where clothing colour was recorded) more than half were already wearing bright-coloured or reflective clothing; clearly this did not guarantee a safer outcome. The majority of drivers had not noticed the cyclist prior to the crash, even when they were wearing reflective or bright colours. In fact the proportion of drivers not noticing a cyclist prior to a crash was no different regardless of whether they were wearing high-visibility clothing or not.

There is some research about the safety effects of wearing hi-vis gear, but the results are generally inconclusive:

- Kwan & Mapstone (2009) reviewed studies investigating the effect of pedestrian and cyclist visibility aids on detection and recognition responses by observers. The 42 studies reviewed generally found improvements to detection distance or recognition time with the use of stronger visibility aids, including fluorescent and retro-reflective clothing. Interestingly, no studies were found that related visibility aids to actual pedestrian/cyclist crash risk.
- An Australian study (Wood et al 2009) found that fluorescent vests were not a significant improvement on black clothing at night, and that retro-reflective strips were more effective when attached to knees and ankles than on a more-or-less static jacket.
- Wood et al (2010) highlighted the problem of "looked but did not see" crashes, where the driver of the vehicle failed to detect the cyclist in time to prevent the crash, even though they reported that they correctly looked in the direction of the cyclist (a similar effect has also been found for motorcyclist crashes). This could suggest shortcomings in driver attention processes, or an expectancy effect (i.e. only scanning for cars). It was not clear whether cyclists wearing hi-vis clothing would reduce these crashes, but drivers and cyclists surveyed generally believed it would help (e.g. 95% of drivers and 72% of cyclists agreed that cyclists should wear reflective clothing in low lighting environments).
- In a study of the habits of 2500 adult Queenslanders who cycle (Washington et al 2011), it was found that "never wearing bright coloured clothing" correlated with increased crash risk; however the use of fluorescent and reflective clothing had no effect.
- Thornley et al (2008) found that cyclists who "always" wore fluorescent clothing had an eightfold reduction in crash risk (in terms of days off work) than those who "never" wore it. However, the authors acknowledged the methodological problems with their study, being based on a self-selected sample of those training for the Lake Taupo Cycle Race.

Other factors are considered more important influences on cycling safety, such as:

- good road design and provision for cycling
- lower traffic speeds
- cycle positioning on the road and training of good cycle riding behaviours
- lighting of the street environment at night
- good lighting and reflectors on bicycles when cycling in dark/low-visibility conditions
- vigilance and awareness of other road users at all times when on the road

CAN believes that:

- Wearing high-visibility (e.g. fluorescent, reflective) clothing when cycling may contribute to improved cycle safety, but the evidence is not conclusive.
- Wearing high-visibility clothing when cycling should be encouraged where appropriate but not made mandatory.
- Other cycling safety factors should have a higher priority than requiring high-visibility clothing, because they are more likely to be effective.

References:

All internet references last accessed on 18th July 2013:

- Koorey G. (2013). [NZ Coroner's Inquiry into Cycling Deaths - Evidence.](#)
- [Kwan I., Mapstone J. \(2009\). Interventions for increasing pedestrian and cyclist visibility for the prevention of death and injuries \(Review\), The Cochrane Collaboration.](#)
- [Thornley SJ, Woodward A, Langley JD, Ameratunga SN, Rodgers A \(2008\). "Conspicuity and bicycle crashes: preliminary findings of the Taupo Bicycle Study". Injury Prevention, No.14, pp.11-18.](#)
- [Washington S., Haworth N., Schramm A. \(2011\) The relative importance of factors influencing bicycling crash risk, Asia-Pacific Cycle Congress, 18-21 September 2011, Brisbane, QLD.](#)
- [Wood J., Lacherez P., Marszalek R., King M. \(2009\). Drivers' and cyclists' experiences of sharing the road: incidents, attitudes and perceptions of visibility. Accident Analysis and Prevention, 41\(4\), pp.772-776.](#)
- [Wood J., Tyrrell R., Marszalek R., Lacherez P., Carberry T., Chu B., King M. \(2010\). Cyclist visibility at night: perceptions of visibility do not necessarily match reality. Journal of Australasian College of Road Safety, pp. 56-60.](#)

CAN's Vision:

Cycling is used as a means of transport by most people for some trips each month.

CAN's Objectives:

- 80% of people cycle for some trips each month by 2020.
- 20% of all trips are by cycle by 2020.
- 90% of those who cycle are satisfied with their cycling experience by 2020.
- Rates of fatality and injury for cycling are below that for cars (currently 5 per 100 million km) by 2020.
- Cycling is perceived as positive by 90% of the general population by 2020.