EVALUATION OF THE QUEENSLAND MINIMUM PASSING DISTANCE ROAD RULE

Final Report

22 February 2016

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EXECUTIVE SUMMARY

The two-year trial of the Queensland minimum passing distance (MPD) road rule began on 7 April 2014. The rule requires motor vehicles to provide cyclists a minimum lateral passing distance of one metre when overtaking cyclists in a speed zone of 60 km/h or less, and 1.5 metres when the speed limit is greater than 60 km/h.

This document summarises the evaluation of the effectiveness of the new rule in terms of its:

1. practical implementation;
2. impact on road users' attitudes and perceptions; and
3. road safety benefits.

The Centre for Accident Research and Road Safety – Queensland (CARRS-Q) developed the evaluation framework (Haworth, Schramm, Kiata-Holland, Vallmuur, Watson & Debnath; 2014) for the Queensland Department of Transport and Main Roads (TMR) and was later commissioned to undertake the evaluation.

The evaluation included the following components:

- Review of correspondence received by TMR;
- Interviews and focus groups with Queensland Police Service (QPS) officers;
- Road user survey;
- Observational study; and
- Crash, injury and infringement data analysis.

Review of correspondence received by TMR

The research team reviewed written correspondence received by TMR from the general public to gauge public opinion about the practical implementation of the rule and its impacts on attitudes and perceptions. The bulk of the 145 items of correspondence about the MPD rule was received from drivers who were unhappy with the rule, with a smaller amount from cyclists who were generally supportive of the rule but were dissatisfied with the severity of the penalty or the extent of enforcement. Of the 18 months of correspondence, most was received in the first 12 months, perhaps suggesting that attitudes to the rule stabilised over time. About half of the correspondents appeared to clearly understand the rule.

Interviews with Queensland Police Service officers

Interviews and focus groups about the practicability of enforcement of the MPD road rule were conducted with three QPS officers who had issued MPD Traffic Infringement Notices (TINs) and 18 who had not. While the sample size was relatively small, the degree of concordance among the officers suggested that similar results would have been obtained if the sample was larger.

Most officers agreed with the need for the road rule and considered that its purpose was to improve cyclist safety. It was generally noted that there is limited enforcement of the

MPD rule and that it is reactive and potentially less than cyclists would prefer. The reasons given for the limited amount of enforcement related to difficulties in collecting sufficient evidence to withstand potential contest and therefore resistance to allocating large amounts of resources to collection of evidence. While officers who had issued TINs generally thought that camera footage was useful, some other officers who had not issued MPD TINs were concerned that the distortion in videos rendered it difficult to estimate distances between motor vehicles and bicycles. The potential for other offences such as "undue care and attention" to be pursued was also mentioned.

Officers commented that drivers may not be aware of the road rule or may have forgotten it, and called for further public education. Despite these concerns and the limited extent of enforcement, most officers believed that drivers were giving riders more space (and perhaps much more than is required by the road rule because it is difficult to judge) and that cyclists may have become less cautious. In conclusion, from the perspective of police officers, the introduction of the MPD road rule has improved cyclist safety despite the difficulties of enforcement leading to few infringements being issued.

Road user survey

Online surveys of the Royal Automobile Club of Queensland (RACQ) and Bicycle Queensland members were conducted to collect a number of process, impact and outcome measures. Respondents included 3013 riders and 4332 drivers, and were typically male, aged 40 years and over, living outside Brisbane (as defined by postcode), and highly educated.

Overall, 25.3% of riders and 36.0% of drivers reported that drivers failed to comply with the MPD on roads with a speed limit of 60 km/h or less "most of the time" or "almost always". Similar levels of noncompliance were reported on roads with speed limits of greater than 60 km/h. Most riders (73.2%) and drivers (59.5%) in the current survey agreed or strongly agreed that they have observed motorists giving bicycle riders more room when overtaking than they used to.

Only 1.5% of cyclists and 5.2% of drivers said they did not know that the MPD road rule had been introduced but there was a lower level of knowledge about the new rule allowing the crossing of a continuous line, when safe to do so, particularly among drivers. Cyclists were more likely than drivers to agree or strongly agree with the MPD road rule (94.7% versus 52.5%). One-third of drivers and two-thirds of cyclists said that the rule has made it safer for cyclists.

The majority of riders (78.7%) and drivers (59.5%) were 'Certain' or 'Very certain' they could accurately judge one metre when being passed (riders) or passing (drivers). They were much less likely to be "Certain" or "Very certain" that other drivers could accurately judge one metre when overtaking a bicycle rider (36.5% riders, 19.0% drivers).

Almost 80% of riders but only 50% of drivers considered that the MPD road rule was being enforced "not at all" or "not much".

Overall, 56.3% of riders and 43.1% of drivers agreed or strongly agreed that "compared to 12 months ago I am more aware of bicycle riders when driving on the road". In

response to the question regarding their opinion of the MPD rule, 26.8% of drivers said that it has made them more aware of cyclists.

Among the riders in the survey, 36 (1.2%) reported being involved in a crash involving a (motor) vehicle that was overtaking them and another 34 (1.1%) fell after swerving to avoid an overtaking vehicle in the last year. However, 59.0% of cyclists reported being involved in a "near-miss with a vehicle that was overtaking you" in the previous year and 15.7% of cyclists reported a "near-miss when swerving to avoid a vehicle that was overtaking you". None of the drivers reported being involved in an overtaking crash with a bicycle but 9.0% of drivers reported near misses with other vehicles travelling in the same direction and 15.1% with other vehicles travelling in the opposite direction when they were overtaking a bicycle.

Attempts were made to compare responses to some questions with responses to those questions in two earlier surveys but this was complicated by differences in the age and gender profiles and distances ridden by the samples across the surveys. Another limitation of this study, in common with many cyclist surveys, was that most respondents rode a lot (the median distance ridden per week was 120 km). Future analyses will examine whether the responses of those who ride less – who are arguably more representative of Queensland riders – are similar to those who ride further.

Observational study

The actual distance left between cyclists and passing vehicles was estimated from video observations at 15 sites.

The first component of the observational study attempted to compare lateral passing distances at the same six locations before the commencement of the MPD trial and after the trial had commenced (pre-post analysis). Unfortunately, changes in the site characteristics and camera locations and few passing events at some sites meant that comparable pre-post data was only available for Breakfast Creek Rd. That location had a very wide left lane in each direction and all passing distances were greater than one metre both before and after the rule was introduced (median passing distances were greater than two metres).

The second component of the study measured the extent of non-compliance with the rule at a range of sites after the commencement of the trial (compliance analysis). The degree of non-compliance varied markedly across the sites, from zero to more than 50%. The overall non-compliance rate across the seven low-speed sites was 12.1%. While the passing distances at the high-speed sites were generally greater than those at the low-speed sites, the overall non-compliance rate across the five high-speed sites was 20.9%, which was greater than the average for the low-speed sites. There were no other clear trends in passing distance according to speed limit or number of lanes.

Comparisons of passing distances and compliance when overtaking cyclists riding in single file versus abreast were possible for two low-speed and two high-speed sites. When the data from all four sites were combined, the percentage of non-compliance was almost statistically significantly higher for passing the "outside rider" of a group riding abreast than for a cyclist riding single file (22.8% versus 15.5%).

The limited number of sites in this study prevented a robust examination of the influence of lane width, presence of bicycle lanes and type of overtaking motor vehicle. The inability to measure distance for all passing events may have led to a bias if those events that were obscured or too far from the camera were systematically different from those that could be measured. Future analyses of the observational data will examine cyclist and driver distances from the kerb and centre line (and other lane lines where appropriate); and the number and magnitude of centre line (and other lane lines where appropriate) crossings by motor vehicles.

There were no measures of passing speed in the observational data or in the survey. If the introduction of the MPD road rule led to drivers passing cyclists more slowly, then this would be expected to have road safety benefits in addition to any benefits related to greater passing distances.

Crash, injury and infringement data

There were 23 cyclist fatalities resulting from road crashes between 1 April 2012 and 31 March 2014 and 10 cyclist fatalities between 1 April 2014 and 31 July 2015. There was a statistically significant 14% reduction in the rate of fatalities for other road users after the road rule change. While there was a 35% reduction in the rate of fatalities for cyclists, this reduction was not statistically significant due to the small numbers involved.

Delays in data coding and availability meant that finalised crash records for non-fatal crashes were not available for the period from commencement of the MPD trial. Similarly, no hospital admission or emergency department presentation data were available for this period. In addition, the crash data analyses could not control for any potential changes over time in the amount of cycling because it was difficult to find cycling participation data that is relevant state-wide and covers the period of interest. Similarly, the impact of changes to other cycling rules on cycling participation and rider behaviour was not able to be assessed in the crash data analyses.

Given the lags in official road crash data, analyses of uncleansed preliminary police data were undertaken. These data were for all reported crashes involving bicycles, without details of the crash circumstances, and so it was not possible to identify those crashes which may have been affected by the MPD road rule. Given these limitations, the analyses showed that during the two years prior to the commencement of the MPD trial, there was an average of 28 serious (fatal and hospitalisation) bicycle-related crashes per month with no statistically significant trend in the number of serious bicycle-related crashes. From the commencement of the trial until October 2015 there has been a statistically significant decreasing trend. This has resulted in 48.5 fewer serious bicycle crashes in the post-commencement period, or 2.7 fewer crashes per month, than would have been expected based on extrapolation from the pre-trial trend. The extent to which this reduction can be attributed to the MPD road rule trial is unclear, but it is nevertheless encouraging.

There were 60 MPD infringements following the introduction of the road rule until 30 June 2015, comprising 0.7% of all bicycle-related infringements. Just over half of these were issued in the North Brisbane and South Brisbane QPS Districts. The total number of bicycle-related infringements per month was similar before and after the MPD road rule was introduced (568 versus 549), suggesting that the total level of enforcement for bicycle

safety remained reasonably constant. However, this overall figure masked a reduction in the rate per month of bicycle helmet infringements accompanied by an increase in the rate of other bicycle infringements after the road rule change. There is no clear rationale for why these differing trends occurred.

Conclusions

In terms of practical implementation, the MPD rule has been difficult for police to enforce and drivers have expressed concern about the ease of compliance on narrow and windy roads and where there is adjacent or oncoming traffic. Both the survey and published visual perception research suggest drivers find it hard to accurately estimate lateral distances. QPS officers had noticed some drivers leaving very large distances, resulting in potential conflicts with oncoming vehicles. None of the drivers surveyed had been involved in such a crash in the previous year, but they did experience near-misses, implying that there is a need for crash data to be monitored in the future.

Despite the problems of practical implementation, drivers reported being more aware of bicycle riders when driving on the road than 12 months ago. Most riders and drivers surveyed had observed motorists giving bicycle riders more room when overtaking than they used to. However, there was no reported change in empathy for bicycle riders or in incidents of harassment between motorists and bicyclists. Thus it appears that drivers have become more aware of cyclists and leave them more room, but their attitudes towards cyclists have not necessarily changed.

The level of observed compliance with the new rule was relatively good, with 12.1% of drivers passing with less than one metre distance at low-speed sites and 20.9% of drivers passing with less than 1.5 metres distance at high-speed sites. However, about a third of the drivers surveyed reported 'Most of the time' or 'Almost always' leaving less than the minimum required distance when overtaking a cyclist (36.0% in low speed zones and 32.2% in higher speed zones). The higher level of observed than self-reported compliance may reflect drivers thinking that they haven't left enough space, when they actually have, because they are unable to accurately estimate the lateral distance.

It is premature to draw conclusions regarding the road safety benefits of the road rule at this stage. There is a need to wait for detailed official crash and hospital data to allow identification of passing too close crashes (bicycle-car) and crashes due to crossing centre lines (car-car). In addition, lack of suitable data prevented an analysis of the potential impacts of changes in cycling participation and rider behaviour due to changes to other cycling rules. Future analyses of the observational data are expected to improve our understanding of the factors affecting actual passing distances. Analyses of the preliminary police crash data suggest that 48.5 fewer serious bicycle crashes occurred in the first 18 months after the MPD rule was introduced than would have been expected based on extrapolation from the pre-trial trend. The extent to which this reduction can be attributed to the commencement of the MPD road rule trial is unclear but it is consistent with the views expressed by many of the police interviewed and the cyclists and drivers surveyed that the introduction of the MPD road rule had made it safer for cyclists.

Acknowledgements

The project team would like to thank the RACQ and Bicycle Queensland for their assistance in recruiting participants for the road user surveys. We are also thankful to Data Audit Systems for collecting the video recordings for the observational study. Vic Siskind kindly assisted with some statistical analyses. Our thanks also to Andrea McCrindle for proof-reading the report.

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1 INTRODUCTION

This document presents the findings of the evaluation of the Queensland minimum passing distance (MPD) road rule. The evaluation included process, impact, and outcome components. The Centre for Accident Research and Road Safety – Queensland (CARRS-Q) developed the evaluation framework (Haworth, Schramm, Kiata-Holland, Vallmuur, Watson & Debnath; 2014) for the Queensland Department of Transport and Main Roads (TMR) and was later commissioned to undertake the evaluation.

1.1 Background

In response to the recommendations of the Transport, Housing and Local Government Committee's *Inquiry into Cycling Issues*, the Queensland Minister for Transport and Main Roads announced a two-year trial of a MPD road rule. The new rule, effective for two years from 7 April 2014, requires motor vehicles to provide cyclists a minimum lateral passing distance of one metre when overtaking cyclists in a speed zone of 60 km/h or less, and 1.5 metres when the speed limit is greater than 60 km/h.

The rule has been introduced to clarify drivers' uncertainty about how much room cyclists need in order to stay safe on the road. As part of the rule, motor vehicles can cross centre lines, even on roads with double unbroken lines, straddle lane-lines and drive on painted islands in order to pass cyclists, as long as it is safe to do so (Queensland Government, 2014). The penalty for breaching the road rule is three demerit points and a fine of three penalty units ($353 at December 2015). A maximum fine of 40 penalty units ($4,712 at December 2015) can apply if the matter goes to court.

In Australia, the most common type of crash in which cyclists are killed on the roads involves being run over by a car or heavy vehicle from behind when cycling in the same direction (ATSB, 2006). The introduction of a minimum distance rule for passing cyclists removes ambiguity about safe passing distances, along with making drivers more aware of the vulnerability of cyclists, and so encourages drivers to leave enough room between the bicycle and their vehicle.

A number of U.S. states along with European countries such as France, Belgium and Spain currently have similar road rules. Minimum passing distance rules have also been trialled or implemented in three Australian jurisdictions, with an additional jurisdiction implementing rules in the near future. A trial of similar legislation commenced in the Australian Capital Territory on 1 November 2015. South Australia introduced permanent minimum passing distance rules on the 25 October 2015. Minimum passing distance requirements will be introduced in New South Wales on 1 March 2016. All of these rules stipulate that all drivers overtaking a bicycle rider must leave at least one metre when the speed limit is 60km/h and below, and 1.5 metres above 60km/h. A somewhat different approach was taken in Tasmania, where road rules were changed in February 2015 to allow drivers to straddle or cross a continuous centre line in order to leave a safe space when passing a bike rider, when it is safe to do so. No minimum passing distance was specified, however.

While minimum passing distance rules have been implemented elsewhere, no other jurisdiction has conducted a comprehensive evaluation of the impact of the rule on safety.

1.1.1 The Queensland MPD road rule trial

The MPD rule was introduced as an amendment to the *Transport Operations (Road Use Management-Road Rules) Regulation 2009*. The original changes were made in the *Transport Legislation and Another Regulation Amendment Regulation (No. 1) 2014* which can be accessed at

https://www.legislation.qld.gov.au/LEGISLTN/SLS/2014/14SL026.pdf

A new section, s144a was added to require the minimum passing distance. It reads:

144A Keeping a safe lateral distance when passing bicycle rider

(1) The driver of a motor vehicle passing the rider of a bicycle that is travelling in the same direction as the driver must pass the bicycle at a sufficient distance from the bicycle.

Maximum penalty—40 penalty units.

Note—

Section 129 requires the rider of a bicycle on a road, other than a multi-lane road, to drive as near as practicable to the far left side of the road.

(2) A ***sufficient distance from the bicycle*** is—

(a) if the applicable speed limit is not more than 60km/h—a lateral distance from the bicycle of at least 1m; or

(b) if the applicable speed limit is more than 60km/h—a lateral distance from the bicycle of at least 1.5m.

(3) For subsection (2), the lateral distance is the distance between the following points—

(a) the furthermost point to the left on the driver's vehicle or any projection from the vehicle (whether or not attached to the vehicle);

(b) the furthermost point to the right on the bicycle, any bicycle trailer towed by the bicycle, the rider or any passenger in or on the trailer.

Example of what is part of a bicycle for paragraph (b)—

a basket or pannier bags attached to the bicycle

Example of what is not part of a bicycle for paragraph (b)—

a flag or stick, whether or not flexible, attached to the bicycle, that projects sideways from the bicycle

Within the *Transport Legislation and Another Regulation Amendment Regulation (No. 1) 2014,* several other changes were made to allow drivers to cross dividing lines or median strips when passing a rider.

There has since been an update to s144A(1) in the *Transport Legislation and Another Regulation Amendment Regulation (No. 3) 2014* which can be accessed at

https://www.legislation.qld.gov.au/LEGISLTN/SLS/2014/14SL279.pdf that changes "drive" to "ride" in the note about Section 129.

1.1.2 Aims of the rule

The TMR Contractor's Brief for this project stated that:

> The intention behind introducing a minimum distance for passing cyclists is to clarify ambiguity about safe passing distances, make drivers more aware of cyclists' vulnerability and encourage drivers to leave enough space between their vehicle and the bicycle (p. 4).

1.1.3 MPD timeline

A timeline of events relating to the MPD road rule trial and the evaluation project is provide in Figure 1.1. The Parliamentary Inquiry into Cycling Issues commenced on 7 June 2013, and the report was tabled in Parliament on 29 November 2013. Prior to the formal government response, the then Minister for Transport and Main Roads (Scott Emerson) announced government support for the introduction of a MPD road rule in Queensland on 9 December 2013. The road rule commenced in Queensland on 7 April 2014, the same day the Queensland Government response to the Inquiry was released. The MPD evaluation framework was provided to TMR in late June 2013. The MPD evaluation commenced on 31 October 2014, with the findings presented to the Minister for Main Roads, Road Safety and Ports (Mark Bailey) on 9 February 2016.

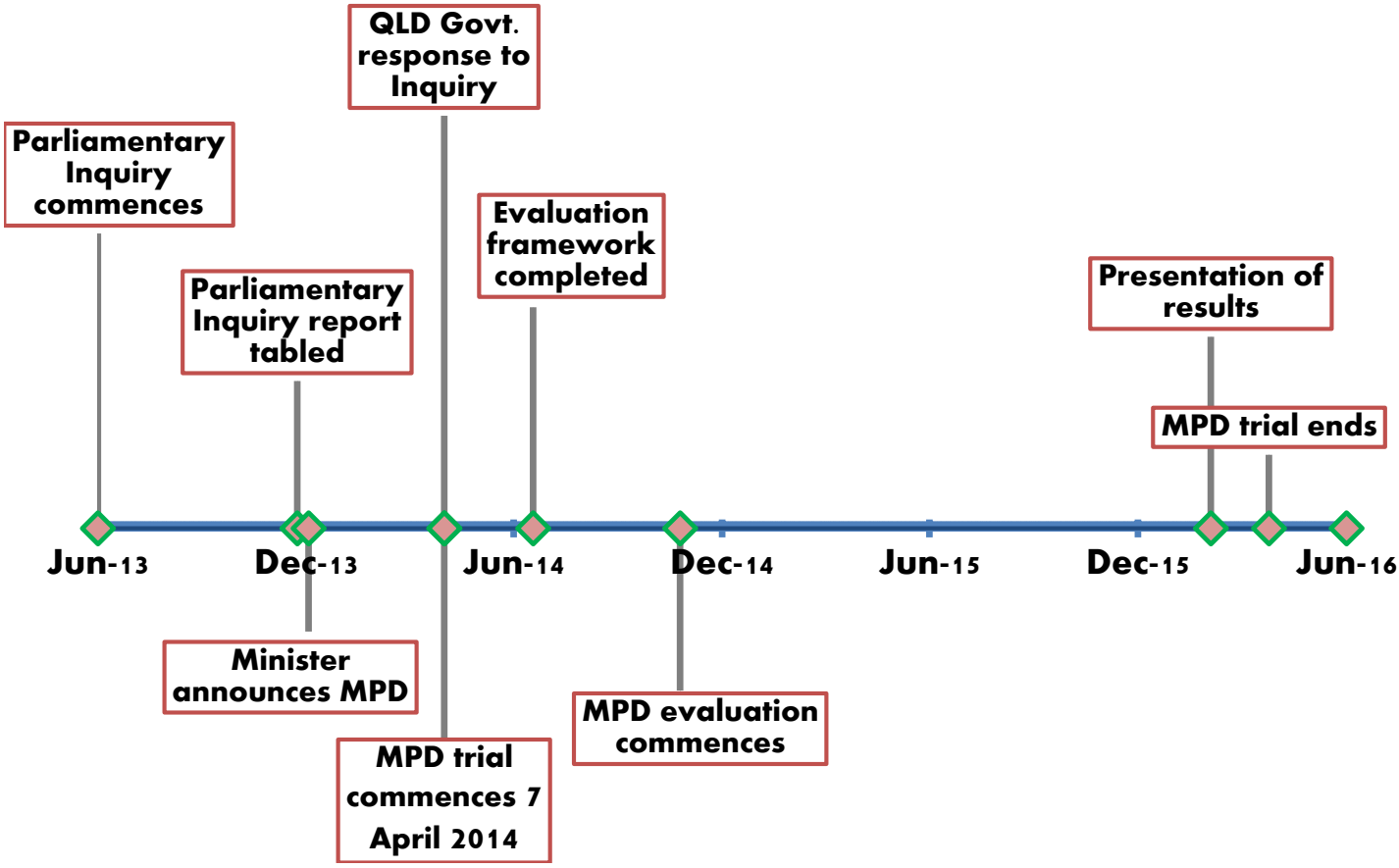

Figure 1.1. Inquiry, MPD trial, and evaluation timeline

1.2 Research Objective

The broad objective of this project is to evaluate the effectiveness of the new minimum passing distance road rule in terms of its:

1. practical implementation;
2. impact on road users' attitudes and perceptions; and
3. road safety benefits.

These three components relate to process, impact and outcome evaluation of the road rule.

1.3 Scope

Activities considered in scope for the evaluation of the MPD included:

1. Develop an implementation plan that specifies data collection activities and analysis methods, drawing on the evaluation framework.

2. Collect new data to complement existing sources as specified in the implementation plan. Activities were expected to include, at a minimum:

    a. Review correspondence received by TMR from the general public regarding the MPD;
    b. Conduct face-to-face interviews or focus groups with police officers;
    c. Develop and implement a post-road rule survey of drivers and cyclists that would draw on earlier surveys to facilitate before-after comparisons;
    d. Gather observational data of passing events; and
    e. Liaise with data custodians other than QPS and TMR to source new hospital and injury data if required.

3. Analyse data to conduct an evaluation of the rule in terms of process, impacts and outcomes (subject to TMR approval of approach).

The relationship between the data collection and analysis activities and the process, impact and outcome aspects of the evaluation are summarised in

Table 1.1.

Table 1.1 Overall design of the evaluation

	Evaluation Component		
	Process	Impact	Outcome
Review of correspondence	✓		
Focus groups and interviews with QPS officers	✓	✓	
Road user survey	✓	✓	✓
Observations of passing events		✓	
Analysis of crash, infringement, hospital and injury data	✓		✓

The following activities were outside the scope of this project:

- A detailed review of minimum passing distance road rules in other jurisdictions or identification of best practice in such rules;
- A detailed literature review;
- An evaluation framework;
- Collection of data other than that specified in the evaluation framework, without prior consultation and approval from TMR; and
- An analysis or evaluation methods of other road safety measures (except where directly related to the minimum passing distance rule).

1.4 Structure of the report

The background, methodology, and results from each stage of the project are presented. The components of the evaluation are presented in the following order:

1. Review of correspondence received by TMR (Section 2)
2. Interviews and focus groups with Queensland Police Service officers (Section 3)
3. Road user survey (Section 4)
4. Observational study (Section 5)
5. Crash, injury and infringement data (Section 6).

The report concludes with a summary of these results in terms of the practical implementation, impact on road users' attitudes and perceptions, and road safety benefits.

2 REVIEW OF GENERAL PUBLIC CORRESPONDENCE RECEIVED BY TRANSPORT AND MAIN ROADS WITH REGARDS TO THE MINIMUM PASSING DISTANCE ROAD RULE

The research team reviewed written correspondence received by TMR from the general public to gauge public opinion about the practical implementation of the MPD rule and its impacts on attitudes and perceptions. The review process, and results are presented below.

2.1 Scope

Items of correspondence that addressed attitudes towards, or compliance with, the rule were included in the review. Correspondence reporting an offence was not included.

2.2 Methodology

Examination of the general public correspondence with TMR was conducted in two stages. For the first stage, de-identified copies of correspondence received by TMR regarding the minimum passing distance road rule, up to January 2015, were provided to CARRS-Q. Correspondence received by TMR between January 2015 and September 2015 was provided at a later date and examined prior to the conclusion of the project.

A table summarising the correspondence was prepared (see Appendix 1) with regard to the following:

- Road user type of correspondent (e.g. cyclist, driver, heavy vehicle operator);
- Type of correspondence;
- Awareness of the rule;
- Knowledge of the rule (including if the correspondent was requesting clarification of the rule);
- Understanding of the rule;
- Acceptance of the rule;
- Extent of compliance;
- Self-perceived ability to comply (and factors that make compliance difficult, if mentioned);
- Particular scenarios addressed; and
- Any other issue raised.

2.3 Results

The majority of correspondence was received prior to 6 March 2015. A total of 110 pieces of correspondence, from 98 individuals, were received during this period. Only 35 correspondence items, from 32 individuals, were received between 6 March 2015 and 14 October 2015. The majority of correspondents were identifiable as drivers (both before and after 6 March 2015).

There were a total of 145 pieces of correspondence received from 136 individuals. The majority of correspondents were clearly identifiable as drivers (43%) with a further 13% possibly drivers, while 5% were identified as both a driver and a cyclist. Twelve percent of the correspondence was clearly from cyclists, with a further 3% possibly cyclists. Other

authors of correspondence included one pedestrian and four groups. In 14% of cases it was not possible to identify who the correspondence was from.

It was evident that the majority of individuals (90%) who contacted TMR were aware of the MPD rule and nearly half of this group (47%) clearly understood the rule. Almost all of the cyclists accepted the rule but most of the drivers did not. Correspondence was reviewed for comments that were related to the extent of compliance, however this was only evident in 12% of all documents. A small proportion of correspondence (4%) referred to self-perceived ability to comply with the rule with half stating they could comply.

2.3.1 Themes in correspondence

The general themes of much of the correspondence from drivers related to:

- Requests for clarification of how the MPD road rule would be applied when the cyclist moves toward the motor vehicle (because of a parked car, debris etc.);
- Requests for the location of the text of the MPD road rule;
- Objections to cyclists being allowed to ride two-abreast (some writers were unaware this was legal);
- Complaints that the MPD road rule is not reciprocal or is in some other way unfair;
- Concerns that allowing drivers to cross the centre line may result in additional head-on crashes;
- Calls for registration of bicycles;
- Suggestions that cyclists should not be permitted (or the MPD road rule should not apply) on particular routes (e.g. high speed, narrow or winding roads);
- Concerns about traffic being obstructed by slow moving cyclists; and
- Requests for clarification of how the MPD road rule would be applied when cyclists came up on the left of cars who were waiting at traffic lights.

Correspondence received after 6 March 2015 drew more attention to the new road rules that permit cyclists to travel outside of marked cycle lanes and to cyclists not using bicycle paths provided.

A wide variety of issues were raised in the correspondence that could be identified as being sent by cyclists. Six items suggested that the rule appeared to be having benefits, while three writers were concerned that the penalty was too low or that there was insufficient enforcement.

2.4 Summary of findings

The bulk of the correspondence about the MPD rule was received from drivers who were unhappy with the rule, with a smaller amount from cyclists who were generally supportive of the rule but were dissatisfied with the size of the penalty or the extent of enforcement. More pieces of correspondence were received in the first year of the trial, perhaps suggesting that attitudes to the rule stabilised over time. About half of the correspondents appeared to clearly understand the rule.

3 INTERVIEWS AND FOCUS GROUPS WITH QUEENSLAND POLICE SERVICE OFFICERS

This chapter describes the methodology and data collected during interviews and focus groups with members of the Queensland Police Service (QPS). The aim of this activity was to collect information from QPS members about the practicability of enforcement of the MPD road rule.

3.1 Methodology

QPS provided input into this aspect of the evaluation to develop the best approach. QPS advised CARRS-Q that interviews or focus groups would allow CARRS-Q to gain a deeper understanding of the issues than a written survey, therefore this was the approach taken. The first process for this task was to complete QUT and QPS ethics requirements. QUT ethics was approved (Ethics approval number 1500000148), and an application to the QPS Research Committee was then approved on 25 June 2015. Approval was sought for either focus groups or individual interviews in order to maintain maximum flexibility in fitting in with the availability and preference of QPS personnel. While most individual interviews and focus groups occurred face-to-face, phone interviews were conducted with regional and rural police.

Interviews and focus groups were conducted in the latter half of 2015 with officers across Queensland (Interviews: South East Queensland [Brisbane and Ipswich] and Longreach; Focus Groups: Brisbane, Toowoomba). Officers who had issued a Traffic Infringement Notice (TIN) for a Minimum Passing Distance rule infringement, and Road Policing Unit (RPU) Officers in Charge (OIC), were approached by the Road Safety Strategic Development and Intelligence Unit to indicate their willingness to participate in the study. Those interested in participating replied directly to the Road Safety Strategic Development and Intelligence Unit who then passed on the contact details to CARRS-Q.

A total of 21 officers participated in the study. Three officers who had issued a TIN were interviewed, all of whom disclosed they were regular cyclists (cycling more than 150 km/week). Two focus groups were conducted: one in Toowoomba and one in Brisbane. Each focus group involved nine police officers, and was facilitated by two CARRS-Q staff members. The majority of officers participating in the focus groups did not identify themselves as cyclists.

As a qualitative exploratory study, the objective was to extract the meaning of statements and general discussion rather than to quantify references to individual issues. It has been noted that themes can be identified as expressions made with frequency, extensiveness or intensity (Krueger, 1998). It has also been argued that frequency should not be taken as an indicator of importance and that critical findings might be mentioned only once (Krueger, 2006). Priority may thus be given to the extensiveness and intensity of statements rather than the frequency. Greater depth of analysis is possible, for example by using software designed for qualitative data analysis such as NVivo or Leximancer. However, as the intention of this component of the study was purely to gain an understanding of QPS perceptions of the practicability of enforcement and factors

affecting their perceptions, rather than to test or develop theory, it was not considered necessary to conduct in-depth analysis.

3.2 Results

The interviews and focus groups were guided by four primary questions. The questions were:

- Do you think the Minimum Passing Distance road rule is needed?
- What is your understanding of the Minimum Passing Distance road rule?
- What enforcement is undertaken?
- What issues have you had (do you foresee) enforcing/securing prosecution for a violation?

A number of issues were raised by the officers and could be grouped into the following six subject areas:

- Cycling safety and need for the MPD road rule;
- Purpose of the MPD road rule;
- Knowledge of the MPD road rule;
- Approach to enforcing the MPD road rule;
- Difficulty in enforcing the MPD road rule; and
- Changes in behaviour.

3.2.1 Cycling safety and need for the MPD road rule

Officers were asked to provide feedback on whether they perceived the road rule to be necessary. Their perceptions regarding the need for the road rule depended on how safe the officers perceived cycling to be in their area. Officers in large metropolitan areas were more likely to consider cycling to be dangerous. Cycling safety was acknowledged as an issue in Brisbane (due to fatalities in the region), and as a concern for cyclists in Toowoomba. Officers in Toowoomba noted that there were a number of "bingles" in the region, but very few involved overtaking events. Some officers stated the road rule was necessary because there was previously no rule that clearly defined what a safe distance was for overtaking a bicycle.

3.2.2 Purpose of the MPD road rule

All officers reported they believed that the purpose of the rule was to reinforce the "Share the Road" message and as such the primary purpose was to improve cyclist safety. There was some evidence that officers believed the road rule was introduced in response to pressure from vocal cycling advocacy groups.

3.2.3 Knowledge of the road rule

Officers in the focus groups in Brisbane and Toowoomba noted that some drivers were not aware of the road rule. Some officers suggested there was a need for regular, ongoing reminders of the MPD road rule (and other road rules, particularly if road rules are changed). Several officers thought that some members of the general public may have forgotten about the road rule. They suggested that only cyclists, and people who know cyclists, are likely to remember that the rule is still in place.

Officers suggested that more education could have been conducted in the lead-up to the introduction of the road rule, and potentially visual representations of appropriate passing distances (from different perspectives, e.g. from a 4WD vehicle and a small passenger vehicle) would have been beneficial.

3.2.4 Approach to enforcing the road rule

Some officers noted that, at least in their region, no active enforcement of the MPD road rule was occurring in their region, with enforcement only being conducted in response to a complaint. However, officers noted that it is a particularly difficult road rule to enforce. It was noted by a number of officers that cycling fatalities or crashes take priority over these types of complaints, and that in some cases the driver is more likely to be issued with an Undue Care and Attention TIN. One officer noted that there appeared to be limited awareness of the MPD road rule for the officers serving at his station unless they rode a bicycle. Officers stated that they believed cyclists expected more enforcement of the MPD road rule.

3.2.5 Difficulty enforcing the road rule

It was noted by the three officers who had issued a TIN that enforcing the MPD road rule is difficult. The greatest obstacle, cited by each officer, was the difficulty of obtaining sufficient evidence. One officer noted that there was a general reluctance to issue a MPD TIN given the risk of the driver contesting the ticket. Officers of lower ranks indicated that there was some resistance from more senior officers for enforcing the MPD road rule. It was noted that cyclists who take the time to report an incident to Police were more likely to provide video evidence. Most officers noted that it was unlikely to proceed further without video support (although independent witnesses, or other cyclists, could provide supporting testimony should the officer wish to proceed with the infringement notice. However, this was not considered an approach that would be taken by most officers given the time required). A senior officer indicated that he would be satisfied to issue a ticket based on personal observation.

Officers who had not issued a TIN for this offence also mentioned the difficulty in obtaining evidence, and issues with camera footage (the "fish-eye" effect that resulted in a distorted image, which could make it more difficult to prove the offence). Several officers questioned the relevance of the MPD road rule in particular situations, such as a cyclist swerving to avoid obstruction (pothole etc.) or reaching a choke-point. It was also noted that if a bicycle-vehicle collision did occur, other infringements are more appropriate (e.g. if during the investigation, the driver indicated they did not see a cyclist, a more appropriate infringement to issue could be "Undue care and attention").

Officers in the focus group also raised the issue of bicycle registration. It was suggested that registration would increase the perception of fairness of the new road rule.

3.2.6 Changes in behaviour

When the discussion shifted to the topic of drivers' ability to comply with the road rule, officers reported that some close passing events were a result of a deliberate action on behalf of the driver. Officers also indicated that some people would not be able to

accurately judge the distance indicated in the road rule, notably when travelling at 60 km/h. Officers also had the perception that drivers were not particularly good at assessing when it is safe to cross a solid line. The officers felt that this inability to accurately determine passing distances leads to erratic passing manoeuvres, where drivers leave much more than one metre when overtaking a cyclist.

However, officers noted that cyclist behaviour has also changed. Before the rule, cyclists rode closer to the left-hand edge of road. Several officers felt that after the introduction of the rule, cyclists appear to feel safer and take greater risks, or feel that they have a greater sense of entitlement to be on the road.

In summary, officers believed that driver behaviour had changed to improve vehicle-bicycle interactions. It was suggested that, should the road rule continue, opportunities for reinforcement of the road rule should be considered (there was the perception that drivers who did not know anyone who rode a bicycle would be less likely to remember the rule), potentially by reminder signs at speed zone changes.

3.3 Summary and limitations

Officers generally agreed with the need for the road rule and considered that its purpose was to improve cyclist safety. Those in large metropolitan areas generally considered cyclist safety as a more significant issue than those officers stationed elsewhere in Queensland.

Officers reported limited enforcement of the MPD road rule and stated that enforcement was reactive and less than cyclists would prefer. They explained that enforcement was limited due to difficulties in collecting sufficient evidence to withstand potential contest and therefore there was resistance to allocating large amounts of resources to collection of evidence. While officers who had issued MPD TINs thought that camera footage was useful, some other officers who had not issued MPD TINs were concerned that the distortion in videos rendered it difficult to estimate distances between motor vehicles and bicycles. The potential for other offences to be pursued such as “Undue care and attention” was also mentioned.

The comment was made by most officers that drivers may not be aware of the rule or may have forgotten about it. As a consequence, they called for further public education. Despite these concerns and the limited extent of enforcement, most officers believed that drivers were giving cyclists more space (and perhaps much more than is required by the road rule because it is difficult to judge) and that cyclists may have become less cautious.

While the sample size was relatively small, the degree of concordance among the officers suggested that similar results would have been obtained if the sample was larger. In conclusion, from the perspective of police officers, the introduction of the MPD road rule has improved cyclist safety despite the difficulties of enforcement leading to few infringements being issued.

4 SURVEY OF ROAD USERS

Consistent with the evaluation framework, surveys of drivers and cyclists following commencement of the MPD trial were undertaken to collect process, impact and outcome measures. The variables examined in the post-commencement surveys included:

1. Self-reported infringement and perceived risk of detection (process);
2. The level of awareness of the MPD road rule (including accuracy of knowledge) (process);
3. The level of acceptance of the MPD road rule (process);
4. Self-reported level of compliance (impact);
5. Perceptions of ability to comply (impact);
6. Driver awareness of cyclists on network (impact);
7. Self-reported involvement in bicycle passing crashes and/or near misses (outcome); and
8. Self-reported involvement in lane/centre line crossing crashes or near misses associated with passing bicycles (outcome).

4.1 Methodology

The methodology section outlines the questionnaire design, recruitment processes, and data cleansing procedures used for this survey. It also outlines the comparability of this survey with previous surveys.

Both driver and cyclist surveys were designed as online surveys. After QUT ethics approval was received (ethics approval number 1500000146), the surveys were loaded onto QUT's KeySurvey online survey software.

4.1.1 Questionnaire design

There were two major considerations in the design of the questionnaire:

- The need for parallel versions for cyclists and drivers; and
- The need to include items from surveys conducted prior to the introduction of the road rule to measure changes associated with the road rule.

4.1.1.1 Parallel versions

Both the driver and cyclist questionnaires contained similar items, with only the road user perspective changed for relevant items. For example, two versions of an item about compliance with the road rule are presented below:

Cyclist version: When you are riding on roads with a speed limit of 60 km/h or less, how often do overtaking drivers leave you less than one metre of clearance?

Driver version: When you overtake a bicycle rider on a road with a speed limit of 60 km/h or less, how often do you leave less than one metre of clearance?

The terms "bicycle rider" and "driver" were used in the questionnaire, because it was felt that "cyclist" has developed a connotation of a lycra-clad enthusiast which not all bicycle

riders would identify with, and to which some drivers might respond more negatively than the less charged term of "bicycle rider".

4.1.1.2 Inclusion of items from previous surveys

A number of items in the survey were matched to previous surveys to allow pre- versus post-MPD trial comparisons. These surveys were the Cycling in Queensland Study (Heesch, Garrard & Sahlqvist, 2010), and the CARRS-Q Independent Survey Panel in Road Safety (InSPiRS) panel survey. In addition, survey items from the Amy Gillett 'Stay Wider of the Rider' Campaign Research (Crosby Textor, 2014) which asked about changes in the previous 12 months were included. Items from the TMR Road Safety Perceptions and Attitudes Tracking (RSPAT) survey were included for comparison purposes, even though the RSPAT items were only collected after the MPD road rule had been introduced.

A brief description of these surveys and the items which were matched is presented below. More details are available in the references provided. A version of the post-MPD trial survey that shows which items were mapped to items from earlier surveys is contained in Appendix 2.

Cycling in Queensland Study

The sample in the Cycling in Queensland Study was drawn from the adult membership (aged ≥18 years) database of Bicycle Queensland (BQ). BQ emailed one member per household a link to an online survey, which was available to them in October-November, 2009. In total, 2356 individuals completed the survey (Heesch, Garrard & Sahlqvist, 2010).

The items in the post-MPD trial survey that were mapped to the Cycling in Queensland Study assessed:

- Demographic characteristics;
- Cyclist perceptions of intentional harassment from motorists or their passengers in the previous 12 months; and
- Involvement in cycling crashes.

To enable comparisons with the Cycling in Queensland Study, demographic items in the current survey were worded to match the demographic items from that survey. These included gender, year of birth (to create five age categories), highest educational qualification completed (from "no formal education" to "postgraduate degree [e.g., Grad Dip, Masters, PhD]"), frequency of riding a bicycle in an average week in the last year (from "5-7 days per week" to "at least once in the last year"), length of riding a bicycle ("don't count riding as a child or teenager if you had a voluntary break from cycling of a year or more"; from "less than 2 years" to "10 years or more").

In addition, respondents were asked about their experiences with intentional harassment from motorists or their passengers in the past 12 months. The forms of harassment assessed were *deliberately driving too close/tailgating (causing fear/anxiety)*, *throwing objects*, *deliberately blocking your path*, *sexual harassment/ making obscene gestures* and *shouting abuse*. Comparing the prevalence of cyclists reporting *deliberately driving too*

close/tailgating between the surveys provided an important measure of cyclist-reported level of compliance by drivers.

Last, respondents of the Cycling in Queensland Study were asked to provide the number of cycling crashes causing injury in the past 12 months, and the main cause of their most severe cycling injury during that time (from "collision with a moving vehicle" to "falling off"). These items were repeated in the current survey, but the item about the main cause of the most severe injury was updated to better reflect the aims of this evaluation. However, it was worded to allow for comparison with the earlier survey. Most notably, respondents of the 2009 survey could select "a collision with a moving vehicle" to be the main cause. In the current survey, respondents were asked two items about collisions with a moving vehicle ("collision with a vehicle that was overtaking you" and "other type of collision with a moving vehicle"), and these items were collapsed for comparison with the earlier survey.

InSPiRS panel survey

At the end of 2013, CARRS-Q conducted a survey of approximately 430 members of its research panel (InSPiRS). Among the respondents, 15% indicated they rode a bicycle at least once or more in an average week and were categorised as "cyclists". The remaining 85% were categorised as "non-cyclists". It should be noted that the panel is under-representative of younger ages (less than 20% aged under 50).

The item in the post-MPD trial survey that was mapped to the InSPiRS panel survey was:

- To what extent do you agree/disagree that motorists should stay a minimum distance of one metre away when passing a bicycle at less than 60 km/h and 1.5m when travelling above 60 km/h?

Amy Gillett Foundation 'Stay Wider of the Rider' Campaign Research

The Crosby Textor market research company conducted an online survey on behalf of the Amy Gillett Foundation (AGF) in late October 2014 to identify and track advertising awareness and effectiveness of the Queensland Government's 'Stay Wider of the Rider' campaign (Crosby Textor, 2014). Among the 800 randomly selected Queensland residents surveyed, 201 stated that they rode at least once a month ("cyclists"), 499 drove most days or weekdays and did not cycle at least once a month ("only drivers") and 440 drove every day and may or may not cycle ("frequent drivers").

The items in the post-MPD trial survey that were mapped to the AGF survey assessed:

- Whether respondents had noticed a change in the space given when overtaking cyclists;
- Comparisons with 12 months ago in regard to road rage, empathy for bicycle riders, and awareness of bicycle riders;
- To what extent respondents agreed with the MPD road rule; and
- To what extent respondents felt that the MPD road rule had improved bicycle rider safety.

It was not possible to make detailed comparisons of the results of the two surveys. Publication of the AGF survey results did not provide sufficient information about the sample for such comparisons, and the project team did not have access to the raw data.

It should also be noted that the AGF survey was conducted 6 months after the introduction of the road rule, and although it asks about changes over the last 12 months, it is not directly a pre-road rule study.

TMR RSPAT survey

The RSPAT survey is an online self-completion survey of an age and gender stratified sample of 600 participants conducted regularly by an external provider for TMR. Items ask about perceptions and attitudes to road safety. The sample includes people over the age of 16 who have travelled on the road (using a motorised, registered vehicle) for at least one hour per week. Following data collection, the results were weighted to represent the distribution of Queensland licences on record.

Surveys conducted prior to 2014 did not examine cycling safety, or attitudes towards cyclists and so no pre-road rule data is available from this source. However, the RSPAT surveys in April-May 2014 and 2015 included items that asked about knowledge and attitude toward the MPD road rule, attitudes towards cyclists, perceptions of cyclists, and general knowledge of road rules and factors that would act as facilitators to cycling.

The items in the post-MPD trial survey which were mapped to the RSPAT survey addressed:

- Respondents' opinions of the MPD rule; and
- Knowledge about the cycling-related road rules that apply in Queensland.

4.1.2 Recruitment

Both the RACQ and BQ provided support in recruitment for the current study. These organisations were approached because they are the largest and potentially most representative organisations for drivers and cyclists in Queensland, respectively. To encourage BQ and RACQ members to complete the survey, participants were offered entry into a prize draw for one of five $200 Coles-Myer gift cards for each survey if they provided contact details.

The driver survey was advertised in an article in the February/March 2015 edition of the RACQ print magazine "The Road Ahead" which has a circulation of almost 900,000 copies (see Appendix 3). The survey was launched on 15 April 2015. One of the logic steps in the driver questionnaire diverted respondents who said they had ridden a bicycle at least once in the last year on Queensland roads to answering items as a cyclist. Unexpectedly, most of the responses to the RACQ-promoted driver survey up to 1 June 2015 were diverted in this way, leaving relatively few respondents to answer the items from the driver perspective. To address this problem, the questionnaire was revised to remove the diversion step, thus ensuring that all respondents who stated that they had driven on Queensland roads in the last year answered items as a driver (but whether they had ridden a bicycle on Queensland roads in the last year was also recorded). RACQ emailed

an invitation to participate in the revised survey to recipients of their online Club News on 8 and 9 July 2015.

The approach for recruiting cyclists was designed to mirror that used in the Cycling in Queensland Study. That study had a response rate of 46.6% (from 4,469 invitations to participate). Bicycle Queensland emailed a link to the survey (where all respondents answered from the cyclist perspective) to half of their members on 22 May 2015. The majority of those who responded as a cyclist were also drivers.

Both surveys closed 31 July 2015.

4.1.3 Data cleansing

Prior to analysis, the survey responses were cleansed. A total of 10,431 survey responses were received by 31 July 2015 (1,128 completed Version 1 of the RACQ survey, 6,296 completed Version 2 of the RACQ survey, and 3,007 completed the BQ survey). Exclusion of respondents occurred in a step-wise manner (number of exclusions for each step in parentheses). Firstly, responses from the 182 respondents who completed Version 2 of the RACQ survey but indicated that they rode a bicycle were excluded. Second, respondents who answered "No" to the items "Have you ridden a bicycle on the road, in Queensland, in the last 12 months" or "Have you driven a car on the road, in Queensland, in the last 12 months" (BQ survey, n=48; RACQ Version 1, n=32; RACQ Version 2, n=42) were excluded, followed by respondents aged less than 18 years of age (n=24), then respondents reporting a postcode not from Queensland (n=1), then finally respondents who did not report age or gender (BQ survey, n=623; RACQ Version 1, n=345; RACQ Version 2, n=1,814). The final sample size for analysis was 7,345 (RACQ Version 1, n=751; RACQ Version 2, n=4,258; BQ survey, n=2,336).

The demographic characteristics of the participants in the Cycling in Queensland survey differed somewhat from the cyclists participating in the current survey (see Appendix 4). For the comparisons presented in this report, data from the earlier survey were excluded from participants who were not residing in Queensland, who had not cycled in the last year, who were under 18 years of age, or whose age and/or gender were missing, in order to match the exclusion criteria of the current survey.

4.2 Survey results

The survey items explored a number of issues. The results with respect to those issues identified below will be discussed in greater detail. Where applicable, the results from this survey are compared with results from other surveys.

Findings discussed in this chapter include:

1. Characteristics of respondents;
2. Perceptions of compliance;
3. Awareness and accuracy of knowledge of the MPD road rule;
4. Level of acceptance of the MPD road rule;
5. Driver ability to comply (ability to judge distance, and scenarios);
6. Enforcement;
7. Awareness of cyclists; and
8. Crashes/near-misses.

4.2.1 Characteristics of respondents

The cleansed data included responses from 3,013 cyclists and 4,332 drivers. Overall, 80.0% of cyclists were male, compared to 61.2% of drivers ($\chi^2(1)=293.96$, $p<.001$). Most respondents (61.4% of cyclists and 45.6% of drivers) were aged 40-59 years, followed by 60+ years (22.0% of cyclists and 37.0% of drivers). However, cyclists were younger on average than drivers ($\chi^2(3)=280.53$, $p<.001$). The median distance ridden per week by cyclists was 120 km.

Most respondents lived outside Brisbane (as defined by postcode), although relatively fewer cyclists lived outside Brisbane (61.6% of cyclists and 75.4% of drivers) ($\chi^2(1)=159.37$, $p<.001$). The respondents were mostly highly educated, with most having a university degree (34.5% of cyclists and 25.9% of drivers) or a postgraduate degree (32.8% of cyclists and 17.8% of drivers). Cyclists overall had a higher level of education than drivers ($\chi^2(5)=448.23$, $p<.001$).

4.2.2 Perceptions of compliance

Overall, 25.3% of cyclists and 36.0% of drivers reported that drivers failed to comply with the MPD road rule on roads with a speed limit of 60 km/h or less "most of the time" or "almost always" (see Table 4.1). Drivers were much more likely than cyclists to report "almost always" (22.1% versus 2.8%) or "almost never" (37.7% versus 3.0%) leaving less than one metre of clearance.

Among those cyclists and drivers who reported riding/driving on roads with speed limits of greater than 60 km/h, 25.1% of cyclists and 32.2% of drivers reported that drivers failed to comply with the MPD road rule "most of the time" or "almost always" on these roads (see Table 4.2). Drivers were much more likely than cyclists to report "almost always" (18.3% versus 3.6%) or "almost never" (37.2% versus 4.4%) leaving less than 1.5 metre of clearance on roads with speed limits of greater than 60 km/h.

Table 4.1. When you are (riding/driving) on roads with a speed limit of 60 km/h of less, how often do (overtaking drivers leave you/you leave cyclists) less than one metre of clearance?

	Cyclist (n=3,013)	Driver (n=4,332)
Almost never	90 (3.0%)	1,632 (37.7%)
Rarely	544 (18.1%)	592 (13.7%)
Sometimes	1,614 (53.7%)	547 (12.6%)
Most of the time	676 (22.5%)	606 (13.9%)
Almost always	84 (2.8%)	955 (22.1%)

Table 4.2. When you are (riding/driving) on roads with a speed limit greater than 60 km/h, how often do (overtaking drivers leave you/you leave cyclists) less than 1.5m?

	Cyclist (n=2,527)*	Driver (n=4,328)*
Almost never	65 (4.4%)	1,582 (37.2%)
Rarely	293 (20.0%)	660 (15.5%)
Sometimes	738 (50.4%)	643 (15.1%)
Most of the time	315 (21.5%)	590 (13.9%)
Almost always	53 (3.6%)	780 (18.3%)

*Respondents who indicated they never drove or rode on roads with posted speed limits >60 km/h were excluded from analysis

About a quarter of cyclists and drivers reported that drivers give bicycle riders "a lot more space" when overtaking than they used to. This is consistent with the survey of AGF cyclists from which the wording of the item was taken (see Table 4.3). About half of the cyclists and about 40% of the drivers said drivers leave "a little bit more space". However, almost a quarter of cyclists and more than a third of drivers had not noticed a change or thought that drivers leave a lot less space.

Table 4.3. When you're driving/riding, have you noticed a change in the space drivers give cyclists/you when they are overtaking?

	Cyclist (n=3,013)	Driver (n=4,332)	AGF Cyclists (n=201)
Yes, a lot more space	737 (24.6%)	1,065 (24.7%)	22%
Yes, a little bit more space	1,580 (52.6%)	1,674 (38.8%)	36%
No, about the same	669 (22.3%)	1,531 (35.5%)	38%
No, a lot less space	15 (0.5%)	44 (1.0%)	4%

Most cyclists (73.2%) and drivers (59.5%) in the current survey agreed or strongly agreed that they have observed motorists giving bicycle riders more room when overtaking (see Table 4.4). The AGF Survey presented their results in terms of net agreement, which was calculated as (%Agree + %Strongly agree) – (%Disagree + %Strongly Disagree). The net agreement was higher in the current survey than reported by the AGF survey, although the pattern of higher net agreement by cyclists than drivers was observed in both surveys.

Table 4.4. Compared to 12 months ago I have observed motorists giving bicycle riders more room when overtaking

	Cyclist (n=3,013)	Driver (n=4,332)	AGF Cyclists (n=201)	AGF Only drivers (n=499)
Strongly disagree	50 (1.7%)	107 (2.5%)		
Disagree	302 (10.0%)	527 (12.3%)		
Neither agree nor disagree	451 (15.0%)	1,107 (25.7%)		
Agree	1,820 (60.5%)	2,176 (50.6%)		
Strongly agree	383 (12.7%)	383 (8.9%)		
Net agreement	51.5%	44.7%	45%	38%

4.2.3 Awareness and accuracy of knowledge of the new road rule

The question "What do you think of the MPD rule?" was repeated from the RSPAT surveys (where most respondents would have been classified as drivers in the current study). Comparisons of responses are provided in Table 4.5. The first sub-item "I didn't know it was introduced" was relevant to awareness and accuracy of knowledge of the new road rule. In the current survey, a small proportion (1.5%) of cyclists and drivers (5.2%) said they did not know that the MPD road rule had been introduced. The percentage of drivers who did not know about the rule appeared to be somewhat less than in the RSPAT survey in 2014, suggesting that driver awareness of the rule has improved over time.

A second question repeated from the RSPAT surveys asked about which road rules relating to cyclists, or driver behaviour around cyclists, were currently in place in Queensland (see Table 4.6). In response to this question, 82.7% of cyclists and 64.1% of drivers in the current survey stated that it was a Queensland Road Rule that drivers were allowed, when safe to do so, to cross a continuous line to allow at least one metre clearance to pass a cyclist in speed zones of 60 km/hr or less. An additional 8.9% of cyclists and 18.3% of drivers did not know whether this rule applies in Queensland. Among the RSPAT respondents, 55% and 50% indicated that this rule applied in the 2014 and 2015 surveys, respectively ("No" and "Don't know" were not reported for this survey item).

There appears to be very few differences between the 2014 and 2015 RSPAT responses, with the largest differences reflecting a 4% drop in the percentages of respondents who did not know the MPD rule had been introduced and a 4% drop in the percentage who found it difficult to judge the distance.

Comparisons between the RSPAT surveys and the current survey need to be interpreted with caution because of differences in the age and gender profiles of the participants. Given that the majority of participants in the RSPAT survey were drivers (not cyclists), then the comparisons should be made with drivers from the evaluation survey.

Given the caveats above, comparisons between the current survey and the RSPAT 2014 survey (undertaken soon after the trial began) suggest that fewer drivers are now unaware of the existence of the MPD road rule (5% versus 12%), more drivers consider that it has made them more aware of cyclists (27% versus 20%) and fewer drivers report finding it hard to judge the minimum distance (18% versus 31%). However, more drivers now report that the road rule hasn't changed their driving (32% versus 24%) and that cyclists use it to block the lane (34% versus 21%). However, some of these differences are less marked when the current survey is compared with the RSPAT 2015, confirming that the differences may reflect real changes, rather than disparities in samples.

Table 4.5. What do you think of the MPD rule?

	Cyclist (n=3,013)	Driver (n=4,332)	RSPAT 2014 (n=600)	RSPAT 2015 (n=600)
I didn't know it was introduced	45 (1.5%)	226 (5.2%)	12%	8%
Generally it has made me more aware of cyclists	1,277 (42.4%)	1,162 (26.8%)	20%	23%
It hasn't changed my driving	702 (23.3%)	1,368 (31.6%)	24%	22%
It only makes it more difficult to pass a cyclist	156 (5.2%)	1,870 (43.2%)	38%	37%
Cyclists use it to block the lane	107 (3.6%)	1,486 (34.3%)	21%	23%
It has made it safer for cyclists	1,997 (66.3%)	1,457 (33.6%)	34%	35%
I find it difficult to judge this distance	306 (10.2%)	776 (17.9%)	31%	27%
It annoys me that cyclists must be given this much clearance	29 (1.0%)	820 (18.9%)	17%	20%
Don't know	3	5	5%	7%
Other	565	1234	6%	4%

Drivers and cyclists were questioned about their knowledge of several road rules relating to cyclists, or driver behaviour around cyclists. More cyclists were aware of the road rule changes that removed the requirement for a cyclist to ride within a marked bicycle lane (see Table 4.6). Greater proportions of cyclists correctly identified which road rules are, or are not, currently in place in Queensland, except for the road rule about cyclist yielding requirements at roundabouts.

Table 4.6. Road rules knowledge (correct answers highlighted in green)

Road Rule	Yes		No		Don't know	
	Cyclist	Driver	Cyclist	Driver	Cyclist	Driver
Bicycle riders must ride within marked bicycle lanes	726 (24.2%)	1,834 (42.9%)	2,064 (68.9%)	1,789 (41.8%)	207 (6.9%)	654 (15.3%)
Bicycle and motorcycle riders are permitted to ride two abreast	2,540 (84.8%)	2,722 (63.3%)	318 (10.6%)	985 (22.9%)	139 (4.6%)	590 (13.7%)
Cyclists are permitted to overtake on the left of motor vehicles when the left hand indicator of the motor vehicle is not on	1,987 (66.4%)	2,385 (55.6%)	624 (20.8%)	747 (17.4%)	383 (12.8%)	1,154 (26.9%)
It is illegal to park in a bicycle lane	1,364 (45.6%)	2,614 (60.9%)	1,165 (39.0%)	894 (20.8%)	459 (15.4%)	783 (18.2%)
It is legal, when safe to do so, to cross a continuous line to allow at least 1 m clearance to pass a cyclist in speed zones of 60 km/hr or less	2,483 (82.7%)	2,757 (64.1%)	251 (8.4%)	757 (17.6%)	268 (8.9%)	788 (18.1%)
Cyclists in Queensland can cycle on footpaths unless otherwise signed	2,580 (86.2%)	2,594 (60.2%)	274 (9.2%)	952 (22.2%)	139 (4.6%)	756 (17.6%)
Cyclists can treat stop signs as give way signs where it is safe to do so	285 (9.5%)	445 (10.4%)	2,486 (82.9%)	3,093 (72.1%)	227 (7.6%)	753 (17.5%)
Cyclists can ride across pedestrian crossings, provided they come to a complete stop before crossing	1,796 (60.0%)	1,619 (37.7%)	841 (28.1%)	1,713 (39.9%)	354 (11.8%)	965 (22.5%)
Drivers must give way to cyclists	1,016 (34.1%)	1,988 (46.4%)	1,713 (57.5%)	1,630 (38.0%)	251 (8.4%)	668 (15.6%)
Cyclists must give way to any vehicle leaving a roundabout	1,508 (50.4%)	2,205 (51.3%)	971 (32.4%)	812 (18.9%)	515 (17.2%)	1,278 (29.8%)

Driver responses in the current survey are compared to those in the earlier TMR RSPAT surveys in Table 4.7 (there are insufficient rider responses in the RSPAT surveys for a comparison of cyclist responses to be made). The percentage of drivers correctly reporting that "It is legal, when safe to do so, to cross a continuous line to allow at least

one metre clearance to pass a cyclist in speed zones of 60 km/hr or less" is greater than in the RSPAT surveys, but the same trend is also evident for some other rules which have not changed.

Table 4.7. Comparison of driver road rule knowledge in the current survey and the RSPAT surveys

Road Rules	Yes			No			Don't know		
	Driver	RSPAT 2014	RSPAT 2015	Driver	RSPAT 2014	RSPAT 2015	Driver	RSPAT 2014	RSPAT 2015
It is illegal to park in a bicycle lane	2,614 (60.9%)	74%		894 (20.8%)	*		783 (18.2%)	*	
~It is legal to park in a bicycle lane unless otherwise signed			32%			*		*	*
It is legal, when safe to do so, to cross a continuous line to allow at least 1 m clearance to pass a cyclist in speed zones of 60 km/hr or less	2,757 (64.1%)	55%	50%	757 (17.6%)	*	*	788 (18.1%)	*	*
Cyclists in Queensland can cycle on footpaths unless otherwise signed	2,594 (60.2%)	48%	45%	952 (22.2%)	*	*	756 (17.6%)	*	*
Cyclists can ride across pedestrian crossings, provided they come to a complete stop before crossing	1,619 (37.7%)	-	-	1,713 (39.9%)	-	-	965 (22.5%)	-	-
~Cyclists can ride across a zebra or children's crossing, or a crossing with traffic lights		-	23%	-	*	*	-	*	*
~Cyclists must ride in a bicycle lane if one is provided^	1,834 (42.9%)	-	7%	1,789 (41.8%)	*	*	654 (15.3%)	*	*
Cyclists can treat stop signs as give way signs where it is safe to do so	445 (10.4%)	15%	60%	3,093 (72.1%)	*	*	753 (17.5%)	*	*
Drivers must give way to cyclists	1,988 (46.4%)	49%	21%	1,630 (38.0%)	*	*	668 (15.6%)	*	*
Cyclists must give way to any vehicle leaving a roundabout	2,205 (51.3%)	55%	-	812 (18.9%)	*	*	1,278 (29.8%)	*	*

*RSPAT report only tables the percentage respondents who have indicated 'Road rules that DO CURRENTLY apply' – Table 2.1.3
~New RSPAT measure for 2015 survey
^MPD survey question framed 'Bicycle riders must ride within marked bicycle lanes'

4.2.4 Level of acceptance of the new road rule

Almost 95% of cyclists agreed or strongly agreed with the MPD road rule while only 52.5% of drivers agreed or strongly agreed (see Table 4.8). Cyclists in the current survey were more likely to strongly agree than those in the AGF survey (78.4% versus 48%). Drivers in the current survey were somewhat less likely to strongly agree with the rule than were the "only drivers" or "frequent drivers" in the AGF survey.

The AGF survey was conducted after the introduction of the MPD road rule. The only comparison data available from before the road rule is from the CARRS-Q InSPiRS survey online component which was collected from December 2013 – March 2014. The number of respondents was small, particularly for cyclists (27 cyclists, 98 drivers) and more than half were aged over 50 years, so the results need to be interpreted cautiously. The InSPiRS results showed that 51% of drivers agreed and a further 27% of drivers strongly agreed that motorists should observe the MPD requirements (although the item did not mention the road rule). These figures are higher than in the evaluation survey (27% and 26%, respectively). To adjust for the different age profiles across the two surveys, the responses from the current survey were examined as a function of driver age. Among the current survey respondents aged 45 and older (who are most similar to the InSPiRS sample), less than 30% strongly agreed and less than 30% agreed with the MPD road rule. Therefore the extent of agreement in the current survey is less than that obtained in the earlier survey.

Table 4.8. Extent to which road users agree/disagree with the Minimum Passing Distance road rule

	Cyclist (n=3,013)	**Driver (n=4,332)**	**AGF Cyclists (n=201)**	**AGF Only drivers (n=499)**	**AGF Frequent drivers (n=440)**
Strongly Agree	2,348 (78.4%)	1,159 (26.9%)	48%	32%	36%
Agree	488 (16.3%)	1,103 (25.6%)	30%	33%	32%
Neither agree nor disagree	67 (2.2%)	708 (16.4%)	11%	18%	15%
Disagree	63 (2.1%)	761 (17.7%)	4%	9%	9%
Strongly disagree	27 (0.9%)	578 (13.4%)	7%	9%	8%

Two-thirds of cyclists and one-third of drivers agreed that the MPD rule had made it safer for cyclists (see Table 4.5). However, almost 20% of drivers reported being annoyed that cyclists must be given this much clearance. Almost a third of drivers stated that "cyclists use it to block the lane" and 43% said "it only makes it more difficult to pass a cyclist".

4.2.5 Driver ability to comply

Two survey items were developed to measure perceived ability to comply with the MPD road rule.

Item 16 explored respondents' perception of their own, and other road users', ability to judge one metre and 1.5 metres when overtaking (drivers) or being overtaken (cyclists). Spatial awareness of themselves, and others, was also examined. Table 4.9 shows that the majority of cyclists (78.7%) and drivers (59.5%) were "Certain" or "Very certain" they could accurately judge one metre when being passed (cyclists) or passing (drivers). They were much less likely to be "Certain" or "Very certain" that other drivers could accurately judge one metre when overtaking a bicycle rider (36.5% cyclists, 19.0% drivers).

Respondents were presented with 14 scenarios to rate how easy it is for a driver to overtake a bicycle in the given circumstances. The scenarios presented attempted to ascertain which of the following factors may influence perceived difficulty complying with the road rule:

- Travel speeds (60 km/h or 80 km/h);
- Number of traffic lanes (1 lane each way or multi-lanes each way);
- Centre line marking (broken or unbroken);
- Presence, or lack, of bicycle facility/road shoulder;
- Number of cyclists (single cyclist, 2 cyclists riding 2 abreast, or 10 cyclists riding 2 abreast); and
- Traffic volume.

While it would have been ideal to ask respondents to rate all combinations of these factors, this would have taken a very long time and would likely have contributed to high levels of respondent attrition. Therefore 14 scenarios were chosen as the most relevant or commonly encountered. The reader is referred to the questionnaire in Appendix 2 for a full description of the scenarios.

The mean ratings for drivers and cyclists (and the 95% confidence intervals for the mean ratings) are presented in Figure 4.1. The mean rating was significantly lower (overtaking perceived to be more difficult) for drivers than cyclists in all 14 scenarios (see ANOVA results in Appendix 5).

Situation 5 was rated most difficult (Driver $\bar{x}$ =2.03), followed by Situation 11, Situation 3, Situation 13 and Situation 14. The factors present within each of the most difficult situations are summarised in Table 4.10. Situations with no bicycle lanes were rated as the three most difficult situations, and the five hardest situations had high traffic volumes (in adjacent lanes when a multi-lane road, or oncoming vehicles when single-lane road). Both high-speed (80 km/h) and lower-speed (60 km/h) situations were represented in the five most difficult situations.

Table 4.9. Perception of ability to judge distance

		Cyclists (n=3,013)	Drivers (n=4,332)
*Bicycle riders can judge if an overtaking car is at least 1 metre away	Very uncertain Uncertain Neither Certain Very certain		502 (11.7%) 1,327 (31.0%) 1,129 (26.4%) 1,043 (24.4%) 280 (6.5%)
I can judge if an overtaking car is at least 1 metre away	Very uncertain Uncertain Neither Certain Very certain	55 (1.8%) 297 (10.0%) 279 (9.4%) 1,791 (60.2%) 551 (18.5%)	199 (4.7%) 895 (20.9%) 638 (14.9%) 1,944 (45.5%) 600 (14.0%)
[Other^] Drivers can judge that they have left at least 1 metre clearance when overtaking a bicycle rider	Very uncertain Uncertain Neither Certain Very certain	234 (7.9%) 1,027 (34.6%) 624 (21.0%) 954 (32.1%) 132 (4.4%)	354 (8.3%) 1,430 (33.5%) 1,679 (39.3%) 716 (16.8%) 94 (2.2%)
Police can judge that a driver has left at least 1 metre clearance when overtaking a bicycle rider	Very uncertain Uncertain Neither Certain Very certain	218 (7.4%) 675 (22.8%) 756 (25.6%) 1,088 (36.8%) 221 (7.5%)	412 (9.6%) 1,145 (26.8%) 1,145 (26.8%) 1,239 (29.0%) 332 (7.8%)
*Bicycle riders can judge if an overtaking car is at least 1.5 metres away	Very uncertain Uncertain Neither Certain Very certain		458 (10.8%) 1,385 (32.5%) 1,146 (26.9%) 1,020 (24.0%) 247 (5.8%)
I can judge if an overtaking car is at least 1.5 metres away	Very uncertain Uncertain Neither Certain Very certain	57 (1.9%) 393 (13.3%) 500 (16.9%) 1,610 (54.4%) 401 (13.5%)	220 (5.2%) 1,001 (23.6%) 802 (18.9%) 1,724 (40.7%) 494 (11.6%)
[Other^] Drivers can judge if an overtaking car is at least 1.5 metres away	Very uncertain Uncertain Neither Certain Very certain	217 (7.3%) 1,025 (34.7%) 706 (23.9%0 888 (30.1%) 118 (4.0%)	343 (8.1%) 1,470 (34.6%) 1,727 (40.7%) 620 (14.6%) 85 (2.0%)
Police can judge if an overtaking car is at least 1.5 metres away	Very uncertain Uncertain Neither Certain Very certain	215 (7.3%) 690 (23.4%) 784 (26.6%) 1,051 (35.6%) 211 (7.2%)	405 (9.5%) 1,180 (27.7%) 1,199 (28.2%) 1,175 (27.6%) 298 (7.0%)

* Question not posed to Cyclists
^ Wording of the question when posed to Drivers

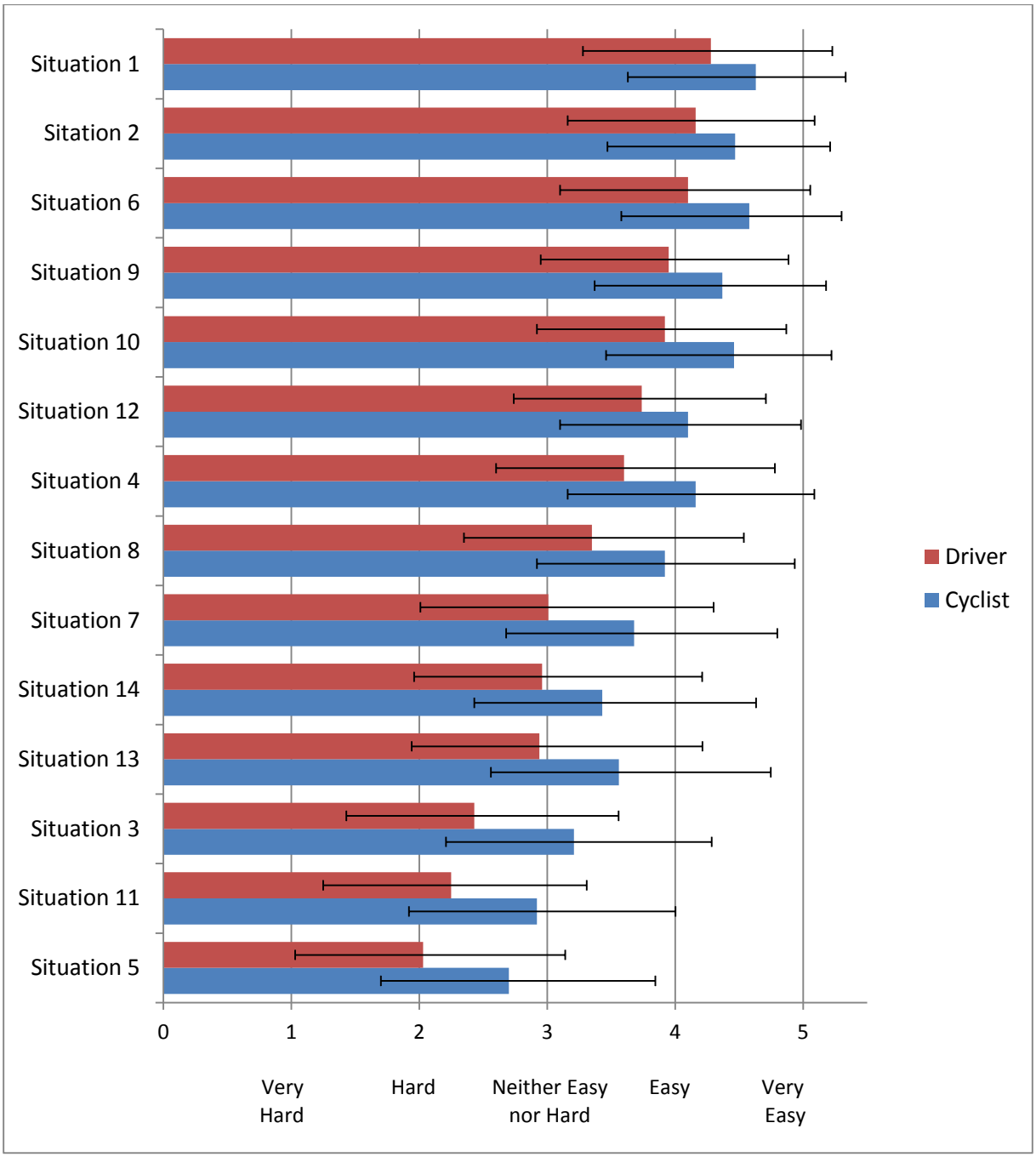

Figure 4.1. Means and 95% confidence intervals of ratings of difficulty overtaking a bicycle when driving (Very hard = 1; Very easy = 5)

Table 4.10. Factors present in situations perceived to be most difficult (grey boxes)

Situation	Factors							
	Single lane road	Multi-lane road	Speed limit: 60 km/h	Speed limit: 80 km/h	Unbroken centre line	Approa-ching vehicles	Adjacent vehicles	No bicycle lane
5								
11								
3								
13								
14								

4.2.6 Enforcement of the MPD road rule

Respondents were asked to report their perceptions of police enforcement of various traffic rules applying to cyclists and/or drivers. Overall, almost 80% of cyclists considered that the MPD road rule was being enforced "not at all" or "not much". In contrast, only 50% of drivers were of this view (see Table 4.11).

In general, respondents thought that the MPD was being enforced less than bicycle helmet laws and driving through red lights. Cyclists perceived more enforcement of cycling offences (not wearing helmets, riding through red lights) than drivers, while drivers perceived more enforcement of driving offences (driving under the influence of alcohol). Cyclists and drivers had similar perceptions of the amount of enforcement directed at driving through red lights (a lot), and riding while under the influence of alcohol (not much).

Table 4.11. Perception of Police enforcement of selected road rules

Police enforcement of the following rules		Cyclist (n=3,013)	Driver (n=4,332)
Drivers passing cyclists closer than the Minimum Passing Distance road rule states			
	Not at all	865 (29.4%)	470 (11.2%)
	Not much	1,471 (49.9%)	1,646 (39.2%)
	Somewhat	512 (17.4%)	1,637 (39.1%)
	A fair bit	66 (2.2%)	328 (7.8%)
	A lot	33 (1.1%)	112 (2.7%)
Bicycle riders not wearing helmets			
	Not at all	133 (4.5%)	466 (10.9%)
	Not much	655 (22.0%)	1,329 (31.2%)
	Somewhat	1,005 (33.8%)	1,251 (29.3%0
	A fair bit	778 (26.2%)	818 (19.2%)
	A lot	403 (13.6%)	399 (9.4%)
Car occupants not wearing seatbelts			
	Not at all	50 (1.7%)	57 (1.3%)
	Not much	357 (12.0%)	413 (9.7%)
	Somewhat	832 (28.1%)	1,114 (26.2%)
	A fair bit	1,065 (35.9%)	1,403 (32.9%)
	A lot	660 (22.3%)	1,273 (29.9%)
Riding through red lights			
	Not at all	118 (4.0%)	1,137 (26.8%)
	Not much	714 (24.1%)	1,448 (34.2%)
	Somewhat	962 (32.5%)	958 (22.6%)
	A fair bit	744 (25.1%)	446 (10.5%)
	A lot	425 (14.3%)	249 (5.9%)
Driving through red lights			
	Not at all	73 (2.5%)	143 (3.4%)
	Not much	354 (12.0%)	499 (11.8%)
	Somewhat	640 (21.7%)	830 (19.6%)
	A fair bit	1,003 (34.1%)	1,270 (30.0%)
	A lot	874 (29.7%)	1,486 (35.1%)
Riding a bicycle while under the influence of alcohol			
	Not at all	457 (15.5%)	1,049 (25.0%)
	Not much	1,326 (45.0%)	1,631 (38.9%)
	Somewhat	757 (25.7%)	990 (23.6%)
	A fair bit	252 (8.6%)	334 (8.0%)
	A lot	155 (5.3%)	193 (4.6%)
Driving a vehicle while under the influence of alcohol			
	Not at all	17 (0.6%)	41 (1.0%)
	Not much	79 (2.7%)	155 (3.7%)
	Somewhat	319 (10.9%)	419 (10.0%)
	A fair bit	1,138 (38.8%)	1,292 (30.8%)
	A lot	1,377 (47.0%)	2,291 (54.6%)

4.2.7 Driver awareness of cyclists on the road

Several items examined driver awareness of cyclists on the road. In response to the item asking for their opinion of the MPD rule (see Table 4.12), 26.8% of drivers said that the rule has made them more aware of cyclists.

Overall, 56.3% of cyclists and 43.1% of drivers agreed or strongly agreed that "compared to 12 months ago I am more aware of bicycle riders when driving on the road". Almost one third of the cyclists (31.8%) and the drivers (33.2%) responded "neither agree nor disagree". The net agreement with this statement by cyclists and drivers in the current survey was lower than in the AGF survey.

Table 4.12. Compared to 12 months ago I am more aware of bicycle riders when driving on the road

	Cyclist (n=3,013)	Driver (n=4,332)	AGF Cyclists	AGF Only drivers
Strongly disagree	74 (2.5%)	291 (6.8%)		
Disagree	283 (9.4%)	731 (17.0%)		
Neither agree nor disagree	955 (31.8%)	1,427 (33.2%)		
Agree	1,265 (42.2%)	1,364 (31.7%)		
Strongly agree	422 (14.1%)	489 (11.4%)		
Net agreement	44.4%	19.3%	60%	41%

Overall, 57.4% of cyclists and 44.8% of drivers agreed or strongly agreed that "compared to 12 months ago I have observed more bicycle riders on the road" (see Table 4.13). About a third (33.7% of cyclists and 37.2% of drivers) were not sure whether they agreed or disagreed with the statement. The net agreement with this statement by cyclists in the current survey was similar to that in the AGF survey, but the net agreement by drivers was somewhat lower than in the AGF survey (26.8% versus 36%).

Table 4.13. Compared to 12 months ago I have observed more bicycle riders on the road

	Cyclist (n=3,013)	Driver (n=4,332)	AGF Cyclists	AGF Only drivers
Strongly disagree	19 (0.6%)	95 (2.2%)		
Disagree	247 (8.2%)	678 (15.8%)		
Neither agree nor disagree	1,010 (33.7%)	1,598 (37.2%)		
Agree	1,364 (45.5%)	1,389 (32.4%)		
Strongly agree	355 (11.9%)	532 (12.4%)		
Net agreement	48.6%	26.8%	52%	36%

Slightly more than 30% of cyclists and about 15% of drivers reported agreeing or strongly agreeing that they had observed fewer incidences of road rage between motorists and bicycle riders compared to 12 months ago (see Table 4.14). Almost half of the cyclists and more than half of the drivers responded "neither agree nor disagree". Overall, the net agreement to this statement in the current survey was considerably lower than in the AGF survey.

Table 4.14. Compared to 12 months ago I have observed fewer incidences of road rage between motorists and bicycle riders

	Cyclist (n=3,013)	Driver (n=4,332)	AGF Cyclists	AGF Only drivers
Strongly disagree	144 (4.8%)	412 (9.5%)		
Disagree	506 (16.8%)	800 (18.5%)		
Neither agree nor disagree	1,448 (48.1%)	2,486 (57.5%)		
Agree	825 (27.4%)	550 (12.7%)		
Strongly agree	85 (2.8%)	72 (1.7%)		
Net agreement	8.6%	-13.6%	25%	2%

About half of the cyclists (48.8%) and about one-quarter of the drivers (26.2%) agreed or strongly agreed that their empathy for bicycle riders had increased in the previous 12 months (see Table 4.15). Almost half of the cyclists (41.3%) but only one-quarter of the drivers (26.4%) responded "neither agree nor disagree". The net agreement with this statement by cyclists was similar to the AGF survey, but the level of net agreement by drivers was much lower in the current survey than in the AGF survey (-21.2% versus -5%).

Table 4.15. My empathy for bicycle riders has increased in the last 12 months

	Cyclist (n=3,013)	Driver (n=4,332)	AGF Cyclists	AGF Only drivers
Strongly disagree	64 (2.1%)	787 (18.3%)		
Disagree	234 (7.8%)	1,253 (29.1%)		
Neither agree nor disagree	1,242 (41.3%)	1,137 (26.4%)		
Agree	1,118 (37.2%)	753 (17.5%)		
Strongly agree	348 (11.6%)	376 (8.7%)		
Net agreement	38.9%	-21.2%	44%	-5%

Overall, 75.0% of cyclists reported that they had experienced intentional harassment from motorists (or passengers) in the last 12 months. Deliberately driving too close (causing fear and anxiety) was reported by 64.3% of cyclists. Other commonly reported forms of harassment were shouted abuse (67.1%), obscene gestures (44.2%), tailgating

(34.9%), deliberately blocking the rider's path (24.6%), throwing objects (18.8%) and sexual harassment (2.7%).

Cyclists were asked this item in the Cycling in Queensland Study in 2009 (Heesch et al., 2010). In that study, the results for deliberately driving too close and tailgating were combined. A simple comparison of the results of the two studies to provide a pre- versus post-MPD rule comparison was not possible because age and gender influenced the reporting of harassment in that study and the cyclists in the current study were somewhat older and more likely to be male (see Appendix 4). Therefore, the data from the earlier study were re-analysed with the same exclusion criteria as the current study (i.e. excluding missing age or gender, non-Queensland residents and those who had not cycled in the previous 12 months).

Table 4.16 shows that the overall percentages of cyclists who reported harassment by drivers deliberately driving too close or tailgating were similar across the two surveys, being 65.2% in the current survey and 66.4% in the earlier survey. The reported percentages are also similar across the two surveys for males and females and for each age group. Therefore it can be concluded that there was no difference in reporting of harassment by drivers deliberately driving too close or tailgating between the two surveys, suggesting no change in cyclist reporting of this behaviour after the introduction of the MPD road rule.

The current survey shows a significant effect of age for both males ($\chi^2(4)=35.25$, $p<.001$) and females ($\chi^2(4)=21.83$, $p<.001$) and for all cyclists ($\chi^2(4)=50.35$, $p<.001$). However, the nature of the age trends appears to differ by gender. For females, the experience of deliberately driving too close/tailgating seems to decrease across the age groups, whereas it seems to be lowest for the youngest and oldest males.

The Cycling in Queensland survey data shows a significant effect of age for males ($\chi^2(4)=24.20$, $p<.001$) and for all cyclists ($\chi^2(4)=13.13$, $p<.05$), but not for females ($\chi^2(4)=1.84$, $p=.766$). The age trends again differ by gender, with a reduction in reporting of deliberately driving too close/tailgating across the age groups by males but no decrease for females (the high percentage for 65+ was from a small sample). It is of interest that the earlier survey did not find the high rate of reporting by young females that was evident in the current survey.

Table 4.16. Percentages of cyclists who reported harassment by drivers deliberately driving too close or tailgating, by gender and age group, in both the current survey and the Cycling in Queensland survey

	18-34	35-44	45-54	55-64	65+	Total
Current survey						
Male	63.9	70.0	70.5	60.9	54.3	65.5
Female	75.0	65.7	71.2	55.3	41.9	64.0
Total	66.3	69.1	70.6	59.7	52.7	65.2
CIQ survey						
Male	70.5	70.9	72.0	61.2	51.4	67.4
Female	61.3	63.3	61.6	67.5	73.7	63.5
Total	67.0	68.6	69.0	62.7	54.6	66.4

4.2.8 Involvement in passing crashes and/or near misses

4.2.8.1 Crashes

In the survey, respondents were asked about their involvement in "accidents". This term was used instead of "crash" to encourage the reporting of less serious and non-collision events which are often not perceived as "crashes" by cyclists.

Of the cyclists who answered the item, almost a half (47.0%) indicated they had been in at least one cycling crash causing them an injury in the last 12 months (see Table 4.17). Most of these respondents indicated that they had been involved in only one injury crash.

Table 4.17. Number of crashes in the past 12 months reported by cyclists

Number of crashes in the past 12 months	Cyclist (n=1,123)
0	595 (53.0%)
1	414 (36.9%)
2	100 (8.9%)
3	9 (0.8%)
4	2 (0.2%)
5	2 (0.2%)
20	1 (0.1%)

The main causes of cyclists' most severe cycling injury are shown in Table 4.18. More than half (55.1%) of the most severe cycling injuries resulted from some type of fall from a bicycle. About 20% of the most severe cycling injuries were caused by collisions with motor vehicles (20.1%), while an additional 9.8% of crashes resulted from swerving to avoid a vehicle. There were 36 collisions with an overtaking vehicle (the type of crash most likely to be affected by the MPD road rule), which comprised 5.8% of the main causes of the most severe cycling injury in the last 12 months. In addition, there were 34 instances (5.5%) of falling after swerving to avoid an overtaking vehicle (which could also be affected by the MPD road rule).

Table 4.18. Main cause of the most severe cycling injury in the past 12 months

Main cause	Cyclist (n=622)
Fall after skidding on a wet or uneven surface	126 (20.3%)
Fall after hitting the kerb, a pothole or other object on the road or path	123 (19.8%)
Other type of fall	82 (13.2%)
Other type of collision with a moving vehicle	73 (11.7%)
Collision with a vehicle that was overtaking you	36 (5.8%)
Collision with another cyclist on a road	36 (5.8%)
Fall after swerving to avoid a vehicle that was overtaking you	34 (5.5%)
Fall after swerving to avoid a vehicle (that wasn't overtaking you)	27 (4.3%)
Collision with another cyclist off-road	21 (3.4%)
Collision with a stationary vehicle	16 (2.6%)
Fall after mechanical incident	12 (1.9%)
No description provided	11 (1.8%)
Collision with a pedestrian on a road	6 (1.0%)
Collision with a pedestrian off-road	6 (1.0%)
Collision with an animal	4 (0.6%)
Assault/struck while riding	3 (0.5%)
Fall after being struck by an object thrown from a vehicle	2 (0.3%)
Collision with an object adjacent to path	2 (0.3%)
Fall after swerving to avoid a pedestrian crossing road	2 (0.3%)

The questions about crash involvement for cyclists were worded to allow comparison with the earlier Cycling in Queensland survey. The tables in Appendix 6 show that cyclists in the current survey were more likely to have been involved in a crash causing them injury in the previous 12 months than cyclists in the earlier survey (47.0% versus 28.2%). In addition, the cause of most serious injury for those involved in crashes was more likely to have been a collision with a moving vehicle in the current survey than in the earlier survey (17.5% versus 12.3%).

A smaller proportion of drivers (3.7%) than cyclists reported being involved in a crash while driving in the previous 12 months (see Table 4.19).

Table 4.19. Number of crashes in the past 12 months reported by drivers

Number of crashes reported in the past 12 months	Driver (n=4,241)
0	4,088 (96.3%)
1	140 (3.3%)
2	8 (0.2%)
3	3 (0.1%)
4	1 (<0.1%)
12	1 (<0.1%)

Drivers were asked to identify if any of the crashes they had when they were driving involved a bicycle in the last 12 months. Of the drivers that had reported involvement in a crash in the past 12 months, only 2.9% (five drivers) reported a crash that involved a bicycle. The main causes of these crashes are shown in Table 4.20. No crash was reported to involve overtaking a cyclist, or to involve another vehicle overtaking a cyclist.

Table 4.20. Main cause of crash while driving that involved a cyclist in the last 12 months

Main cause of crash	Driver (n=5)
Cyclist running red light	2 (40%)
Crossing footpath (cyclist travelling on path)	1 (20%)
Opening car door in path of cyclist	1 (20%)
Other type of collision with a bicycle	1 (20%)

4.2.8.2 Near-misses

Incident, or near-miss, information potentially provides greater insight into risk experienced by cyclists and drivers on the road network. Researchers have noted that reported crashes only represent a small subset of problematic traffic scenarios, and that near-misses and unreported crashes provide additional information (Ljung, Huang, Aberg & Johansson, 2004).

While it is acknowledged that it would be difficult for respondents to quantify the number of near-miss events, respondents were asked to identify which type of near-miss events they had experienced in the previous 12 months.

The most common near-miss event reported by cyclists was "near-miss with a vehicle that was overtaking you" (59.0%), with an additional 15.7% reporting a "near-miss when swerving to avoid a vehicle that was overtaking you". Near-misses with vehicles (overtaking, other, or stationary) were among the most common. For those not involving a vehicle, the most common near-miss events reported by cyclists were "near-miss after hitting the kerb, a pothole, or other object" (21.8%), "near-miss with a pedestrian on a

road" (20.4%), "near-miss after skidding on a wet or uneven surface" (18.2%), and "near-miss with a cyclist on a road" (17.9%) (see Table 4.21).

Table 4.21. Near-misses experienced by cyclists in the last 12 months (multiple responses permitted)

Near-miss types	Cyclist (n=3,013)
Near-miss with a vehicle that was overtaking you	1,778 (59.0%)
Near-miss when swerving to avoid a vehicle that was overtaking you	474 (15.7%)
Other type of near-miss with a moving vehicle	1,133 (37.6%)
Near-miss when swerving to avoid a vehicle (that wasn't overtaking you)	683 (22.7%)
Near-miss after hitting the kerb, a pothole or other object on the road or path	656 (21.8%)
Near-miss with a pedestrian on a road	616 (20.4%)
Near-miss after skidding on a wet or uneven surface	548 (18.2%)
Near-miss with a cyclist on a road	538 (17.9%)
Near-miss with a stationary vehicle	396 (13.1%)
Almost falling off	278 (9.2%)
Near-miss with a cyclist off-road	245 (8.1%)
Near-miss with a pedestrian off-road	228 (7.6%)
Near-miss with an animal	26 (0.9%)
Object thrown from a vehicle	4 (0.1%)
No description provided	3 (0.1%)
Debris damaging bicycle	2 (0.1%)
Road conditions (road edge ending)	1 (0%)

Drivers were also asked to report the near-miss events they had experienced in the past 12 months. "Other types of near-miss with a bicycle (not involving overtaking a bicycle)" was the most common (16.8%), followed by "near-miss with a vehicle travelling in the opposite direction when overtaking a bicycle rider" (15.1%). There were fewer reported near-misses with vehicles travelling in the same direction when overtaking a bicycle (9.0%). "Other types of near-miss with a vehicle" (2.2%), and a near-miss with a vehicle (when that vehicle was the one overtaking a bicycle) (2.1%), were less frequently reported (see Table 4.22).

Table 4.22. Near-misses experienced by drivers in the last 12 months (multiple responses permitted)

Near-miss types	Driver (n=4,332)
Near-miss with a bicycle you were overtaking	414 (9.6%)
Other types of near-miss with a bicycle	729 (16.8%)
Near-miss with a vehicle, travelling in the opposite direction as you, when you were overtaking a bicycle rider	656 (15.1%)
Near-miss with a vehicle, travelling in the same direction as you, when you were overtaking a bicycle rider	388 (9.0%)
Other types of near-miss with a vehicle	95 (2.2%)
Near-miss with another vehicle, when they were overtaking a bicycle	89 (2.1%)
No description provided	8 (0.2%)
Near-miss with an animal	4 (0.1%)

4.2.9 Involvement in other types of crashes

4.2.9.1 Cyclist crashes not involving a vehicle

Of the most serious crashes experienced in the previous 12 months by cyclists, the majority of crashes (70.2%) did not involve another vehicle (see Table 4.18). Surface conditions (potholes, wet or uneven surfaces) and obstructions (kerb, or object on surface) were the identified as the main cause of 40.4% (n = 251) of the most severe cycling crashes in the past 12 months. There were 116 (18.6%) crashes that involved a vehicle, where the vehicle was not overtaking a cyclist.

4.2.9.2 Driver crashes not involving a bicycle

The majority (97.1%) of crashes that drivers reported they had experienced in the previous 12 months did not involve a bicycle. No further questions were asked about crashes that did not involve a bicycle, in order to limit overall survey length.

4.3 Summary and limitations

A total of 4,332 drivers and 3,013 cyclists completed online questionnaires in April to July 2015 (12-15 months after the MPD road rule was introduced). The surveys contained similar items, with only the road user perspective changed for relevant items. The main findings are summarised below.

4.3.1 Perceptions of compliance

Survey respondents reported high levels of non-compliance with the MPD road rule. A quarter of cyclists reported that overtaking drivers leave less than one metre (or 1.5 metres in higher speed zones) "most of the time" or "almost always". Even more drivers reported failure to comply (36.0% in 60 km/h or less speed zones and 32.2% where the

speed limit was greater than 60 km/h). However, about three-quarters of both cyclists and drivers reported that drivers gave cyclists more space than they used to.

4.3.2 Awareness and accuracy of knowledge of the MPD road rule

Only 1.5% of cyclists and 5.2% of drivers did not know that the MPD road rule had been introduced. This is in contrast to the views expressed by some police officers in the interviews and focus groups conducted as part of this evaluation, where they suggested that motorists had forgotten about the rule. Given the high levels of non-compliance evident in the survey, it is possible that police have observed non-compliance and interpreted this behaviour as lack of knowledge or awareness of the rule (where it could be deliberate non-compliance or incorrect judgement of the distance). It is also possible that survey respondents may have been more aware of the rule than other members of the general public.

There was a lower level of knowledge about the ability to cross a continuous line, when safe to do so, to pass a cyclist. Only 64% of drivers thought that this was a road rule currently in place in Queensland, while 18% thought this was not a current road rule in Queensland and a further 18% were not sure. In contrast, 83% of cyclists knew it was a current road rule in Queensland.

4.3.3 Level of acceptance of the MPD road rule

The survey found that almost all cyclists but only just over half of drivers surveyed (95% versus 53%) agreed or strongly agreed with the MPD road rule. The level of agreement among drivers was lower than in the CARRS-Q InSPiRS survey before the road rule was introduced, in which about three-quarters of drivers agreed or strongly agreed with the requirements of the rule.

One third of drivers and two-thirds of cyclists said that the rule has made it safer for cyclists. However, some drivers expressed scepticism about the road rule, with 43% stating that "it only makes it more difficult to pass a cyclist" and 34% stating that "cyclists use it to block the lane".

4.3.4 Driver ability to comply

Just over half of the drivers surveyed were "Certain" or "Very certain" that they could judge if they have left at least one metre (or 1.5 metres in a higher speed zone) when overtaking a bicycle rider. They were much less certain that other drivers could judge correctly.

In all 14 overtaking scenarios presented in the survey, driver ratings of how easy it was to overtake a cyclist were lower than cyclists' ratings. The absence of bike lanes and traffic in adjacent lanes or oncoming traffic were associated with drivers finding it less easy to overtake. Speed limit did not appear to influence ratings of difficulty.

4.3.5 Enforcement

Almost half of the drivers who responded to the survey thought that police were enforcing the rule "Somewhat", "A fair bit" or "A lot" (although only 20% of cyclists thought this was

the case). Drivers were also more confident in the ability of police to estimate the required passing distance than their own, or other drivers', ability. The level of enforcement of the MPD road rule was judged to be less than that of bicycle helmets or driving through red lights.

4.3.6 Awareness of cyclists

More than a quarter of drivers who responded to the survey said that the MPD rule had made them more aware of cyclists. More than 40% of drivers agreed or strongly agreed that they were more aware of bicycle riders when driving on the road than 12 months ago. However, almost half of the drivers disagreed or strongly disagreed that their empathy for bicycle riders has increased in the last 12 months. In addition, almost 30% of drivers disagreed that they had observed fewer incidents of road rage between motorists and bicyclists compared to 12 months ago. Thus it appears that drivers have become more aware of cyclists, but have not necessarily improved in their attitudes towards them.

Overall, the percentage of cyclists reporting that drivers deliberately drove too close or tailgated them was similar in the current study to that reported by Heesch et al. (2010) in their 2009 survey.

4.3.7 Involvement in bicycle passing-related crashes and near-misses

Cyclists reported that the main cause of 6% of their most severe injury crashes was a collision with an overtaking motor vehicle and another 6% involved swerving to avoid an overtaking motor vehicle. However, almost 60% of cyclists reported having been involved in a near-miss with an overtaking vehicle in the previous year and 16% reported a near-miss when swerving to avoid an overtaking vehicle. No drivers reported any collisions when overtaking bicycles but 10% of drivers reported a near-miss with a bicycle they were overtaking.

Many drivers reported near-misses with other motor vehicles associated with overtaking of bicycles in the previous 12 months: 15% of drivers had a near-miss with a vehicle travelling in the opposite direction and 9% had a near-miss with a vehicle travelling in the same direction while they were overtaking a bicycle. In addition, 2% of drivers were involved in a near-miss with another vehicle that was overtaking a bicycle.

No earlier surveys specifically asked about involvement in bicycle passing-related crashes but the Cycling in Queensland survey asked cyclists questions about involvement in collisions with moving vehicles. Cyclists in the current survey were more likely to have been injured in a crash in the last 12 months than in the earlier survey (47% versus 22%) and more of their most serious injuries related to collisions with moving vehicles (18% versus 12%). These differences may be at least partly due to the longer distances ridden per week by cyclists in the current survey (median 120 kms per week, compared to 50 kms per week).

4.3.8 Conclusions

The driver and cyclist surveys successfully attracted large numbers of respondents over a wide geographical and age range. This provided robust data regarding current

knowledge, attitudes and behaviours related to the MPD road rule. Cyclists were more knowledgeable about the MPD road rule, had a higher level of acceptance and belief that it had increased driver levels of awareness of cyclists than did drivers. Drivers had lower perceptions of the level of compliance with the MPD road rule, and considered that it was more difficult to judge the distance and to comply in a variety of road scenarios.

While attempts were made to construct pre-post comparisons by incorporating items from earlier surveys into the current survey, this was less successful. Only the Cycling in Queensland and the CARRS-Q InSPiRs surveys collected relevant data before the MPD road rule was introduced and comparisons with these surveys were complicated by differences in the age and gender profiles and distances ridden across the surveys.

Another limitation of this study, in common with many cyclist surveys, was that most respondents rode a lot (the median distance ridden per week was 120 km). Future analyses will examine whether the responses of those who ride less – who are arguably more representative of Queensland riders – are similar to those who ride further.

5 OBSERVATIONAL STUDY

The most important impact measure for the evaluation of the MPD road rule is the actual distance left between cyclists and passing vehicles. Therefore video observations of interactions of cyclists and drivers on road segments were collected and analysed in relation to:

(a) whether passing distances had increased following the introduction of the MPD road rule;
(b) whether the percentage of passing distances that were greater than required by the MPD road rule had increased following the introduction of the rule;
(c) the extent of non-compliance with the MPD road rule; and
(d) factors influencing compliance with the MPD road rule.

5.1 Study design

The observational study had two components:

1. Comparison of lateral passing distances at the same locations before the commencement of the MPD trial and after the trial had commenced (**pre-post analysis**); and
2. Assessment of the extent of compliance with the rule at a range of sites after the commencement of the trial (**compliance analysis**).

5.1.1 Pre-post comparison

As noted earlier in this report, there was no systematic collection of baseline data before the commencement of the trial. The evaluation framework (Haworth et al., 2014) had identified several sets of video observations of cyclists that had previously been commissioned by TMR or Brisbane City Council (see Appendix 2 of the framework report). Video data collected at six inner-city Brisbane locations by TMR as part of cordon counts of bicycle activity appeared to be the most promising pre-data for the MPD evaluation. All of these sites had speed limits of 60 km/h or less. It was decided to collect post-implementation data at these locations and then compare the mean passing distance and percentage of passing distances which were less than required by the road rule for the pre-trial and post-implementation observations at the same sites.

While there was no indication of how many passing events were captured in the pre-trial videos, the numbers were expected to be insufficient to achieve reasonable levels of statistical power in the analyses. To increase the number of passing events observed, it was decided to collect data for four days post-implementation instead of the two days of pre-trial data collection.

Unfortunately, as will be detailed later, changes in the site characteristics and precise camera locations meant that the pre-post comparison was not able to be successfully performed.

5.1.2 Compliance analysis

For the compliance analysis, observations were conducted at a range of new sites (including higher-speed sites), as well as those for which pre-trial data was available.

The passing distances measured after the commencement of the trial were analysed in terms of the percentage of passing distances which were less than required by the road rule.

5.2 Methodology

Both pre-trial and post-commencement video recordings were undertaken by Data Audit Systems (DAS), a specialised traffic counting company. Cameras were generally mounted on poles and were fitted with infrared filters to allow filming at night. Passing events were examined in both directions where possible (towards and away from the camera).

Ethics approval for the observational study was obtained from QUT (approval number 1500000220).

5.2.1 Observation locations

The 15 locations (see Table 5.1) included urban and suburban locations in high and low socio-economic areas in South East Queensland and regional locations, and tourist locations. The pre-trial data for six sites was collected on Thursday 16 May 2013 and Sunday 19 May 2013. The post-commencement of trial data was collected from Thursday 7 May 2015 to Sunday 10 May 2015 (inclusive). Additional data was collected at The Esplanade from Thursday 16 April 2015 to Sunday 19 April 2015 as part of another project and data was also collected on 28 and 29 May 2015 at Mt Sampson Rd to replace data lost when a camera was stolen.

The observation locations varied according to bicycle and motor vehicle volumes, speed limit, number of lanes, whether kerbside parking is present (and occupied), and the presence or absence of marked bicycle lanes. The road geometry and photographs of the sites are provided in Appendix 7, as well as the details of the collection of the data.

Table 5.2 presents more details of the characteristics of those sites where an attempt was made to collect data at locations where earlier (pre-trial) data was available. Comparable data was able to be collected at exactly the same location with no changes in camera location or direction or road markings at Breakfast Creek Road and Cordelia Street. Unfortunately, there were changes in either camera location or direction at the other sites which rendered the post-commencement data unable to be used for comparison purposes. For example, at Grey Street the camera was placed in the same location but faced the opposite direction because trees had grown larger and obscured the view in the original direction. On Montague Rd the position of the pole had moved and therefore the camera was unable to be placed at exactly the same location.

Table 5.1. Observation sites and site characteristics

Road	Suburb	Region	Speed limit	Bicycle facility
Annerley Rd*	Dutton Park	Urban	60 km/h	On-road bicycle lane – pre only
Breakfast Creek Rd*	Newstead	Urban	60 km/h	None
Cordelia St*	South Brisbane	Urban	60 km/h	None
Gladstone Rd*	Dutton Park	Urban	60 km/h	Bicycle Awareness Zone (BAZ)^
Grey St*	South Brisbane	Urban	40 km/h	BAZ On-road bicycle lane in each direction
Montague Rd*	West End	Urban	60 km/h	None
Sandgate Rd	Bracken Ridge	Suburban	70 km/h	None
Jacaranda Av	Logan	Suburban	60 km/h	On-road bicycle lane
Hope Island Rd	Hope Island	Suburban	70 km/h	On-road bicycle lane
The Esplanade	Surfers Paradise	Urban	40 km/h	BAZ
Pacific Boulevard	Buddina	Suburban	50 km/h	BAZ
Cooroy-Noosa Rd	Tewantin	Regional	80 km/h	None
Mt Sampson Rd	Dayboro	Regional	100 km/h	None
Dean St	North Rockhampton	Suburban	60 km/h	None
Bruce Highway	South Rockhampton	Suburban	70 km/h	None

* Locations where pre-road rule and post-road rule data was collected
^ A Bicycle Awareness Zone is a yellow painted bicycle outline on the roadway to alert motorists to the potential for bicycle riding in that area.

5.2.2 Identification and classification of passing events

This was the first study of bicycle passing distances where observations were made by video recordings from cameras fixed to poles. Previous research used recordings from bicycles instrumented with video cameras (Love, Breaud, Burns, Margulies, Romano & Lawrence, 2012; Stewart & McHale, 2014; Parkin & Meyers, 2010) or ultrasonic sensors (Walker, 2007; Walker, Garrard & Jowitt, 2014) or both (Chapman & Noyce, 2012; Mehta, Mehran & Hellinga, 2015). The range of passing scenarios in data collected by an instrumented bicycle is relatively narrow, with only one vehicle overtaking the single bicycle at a time (although a decision still needs to be made whether to include vehicles closely following the first vehicle that overtakes the bicycle). Overhead video recording allows capture of a wider range of passing scenarios, including:

- A single motor vehicle passing a single bicycle;
- A single motor vehicle passing several bicycles that are being ridden in single file;
- Multiple motor vehicles in succession passing a single bicycle;
- Multiple motor vehicle passing several bicycles that are being ridden in single file;
- A single motor vehicle passing two (or more) bicycles being ridden abreast; and

- Multiple motor vehicles in succession passing two (or more) bicycles being ridden abreast.

Where two (or more) bicycles are being ridden abreast, then it is only the distance to the closer rider that is relevant to compliance with the MPD road rule. However, the distance to all cyclists is relevant for bicycle safety. For this reason, an attempt was made to measure the passing distances to all bicycles and the analyses are provided separately for all bicycles being passed and only those distances to the closest bicycle. Where multiple vehicles passed the same bicycle, then all of the distances have been included in the analyses.

Another complication arising from the range of passing scenarios able to be identified is that the counts will depend on whether the unit of measurement is the overtaking event, or the number of bicycles passed, or the number of vehicles overtaking bicycles.

For the purpose of the analysis, **a passing event** is defined as a bicycle being passed on the right-hand side by a motor vehicle. Thus, a motor vehicle overtaking two cyclists riding abreast is counted as two passing events. Similarly, two motor vehicles in succession passing a single bicycle is defined as two passing events.

A same-lane passing event is defined as a bicycle being passed on the right-hand side by a motor vehicle travelling within the same lane (or within the kerb-side lane if the bicycle is travelling in a bicycle lane or on a road shoulder).

5.2.3 Coding of video to estimate lateral passing distances

Video data was recorded at 12 frames per second and therefore most passing events were captured in more than one frame of video. Lateral passing distance was defined as the minimum perpendicular separation measured during the passing event.

After manually identifying passing events, the videos were processed using Open Source software based on a feature-extraction approach (Saunier & Sayed, 2006). It detects features in the image (typically salient points like the corner of a vehicle) and tracks their movements over consecutive frames. A second part of the system then matches the movements of different features to assess whether they belong to the same object. If the geometry and perspective of the recording area is known, a mathematical operation (a homography) can then be used to transform the distance between objects in pixels to their actual distance in metres.

Unfortunately, examination of the estimated distances produced by automated video processing revealed that they were unreliable. The resolution of the videos was not sufficient to reliably detect cyclists (although it was generally sufficient for cars). Most passing events were missed, and the system also had difficulty extracting the actual size of different objects, leading to incorrect distance estimates. Furthermore, the angle of the camera relative to the road surveyed was not always appropriate: cyclists were sometimes partially hidden by cars and thus not detected as different objects by the system.

Table 5.2 Characteristics of sites where pre- and post-measures were collected

Location		Camera GPS	Camera Direction	Bike lane (BL)	Traffic lanes (TL)	Screen-left BL*	Screen-right BL*	Screen-left TL1*	Screen-left TL2*	Left-turn lane*	Right-turn lane*	Screen-right T2*	Screen-right T1*
Annerley Rd	Pre	-27.486335, 153.029103	South	Yes	2 lanes each way	2.6m	1.9m	3.1m	2.9m			3.2m	4.0m
	Post	-27.497882, 153.027607	East	No	2 lanes each way	-	-	3.8m	2.8m			3.2m	3.3m
Breakfast Creek Rd	Pre	-27.441732, 153.045527	North	No	2 lanes each way			5.2m	3.3m			4.0m	6.0m
	Post	-27.441732, 153.045527	North	No	2 lanes each way			5.2m	3.3m			4.0m	6.0m
Grey St	Pre	-27.475898, 153.019665	East	Yes	1 lane west-bound, 1 through lane east-bound and 2 turning lanes	1.2m	1.0m	2.8m	-	2.1m	2.7m	2.9m	-
	Post	-27.475898, 153.019665	West	Yes	1 lane east-bound, 1 through lane west-bound and 2 turning lanes	1.2m	1.2m	3.8m	-	2.2m	2.9m	2.8m	
Montague Rd	Pre	-27.475729, 153.008191	North	No	1 lane + wide shoulder each way			3.1m	-			3.0m	-
	Post	-27.478557, 153.006356	North	Advanced Stop Box	2 lanes each way			3.1m	3.1m			3.2m	3.1m
Gladstone Rd	Pre	-27.49685, 153.025948	West	Yes	2 lanes each way	1.2m	2.0m	3.0m	3.0m			3.0m	3.0m
	Post	-27.484809, 153.019784	South	Yes	2 lanes each way	1.9m	2.6m	3.0m	3.0m			3.0m	3.1m
Cordelia St	Pre	-27.476858, 153.016489	East	No	3 lanes	-	-	2.9m	3.0m			3.3m	3.1m
	Post	-27.476858, 153.016489	East	No	3 lanes	-	-	2.9m	3.0m			3.3m	3.1m

*BL=Bike lane, TL1=Traffic lane 1, TL2=Traffic lane 2

Therefore a semi-manual estimation of passing distances was undertaken and completed for each site, for both the pre- and post-commencement data. It was based on a point-and-click custom Python script which automatically computed distances based on the pixel-scale of the image and a reference distance (typically the width of the lane) once the operator had manually selected the position of the cyclist and passing car in the image.

5.3 Results

5.3.1 Number of passing events identified and measured

Table 5.3 presents the numbers of passing events identified and measured at each of the observation sites. The number of bicycles was counted in the post-commencement of trial data collection. Overall, more than 10% of bicycles observed were overtaken by motor vehicles, but there was large variability among sites.

At the six before-after comparison sites, 1,048 passing events were identified from the video recording pre-MPD trial commencement, and the passing distance was able to be measured for 641 of these events. Another 1,175 passing events were identified post-MPD trial commencement at these sites, including 679 where the passing distance was able to be measured. Unfortunately, only four passing events were identified and measured at Gladstone Rd in the post-commencement period, preventing the inclusion of this site in the compliance analyses. Similarly the very small numbers of passing events identified and measured at Cordelia St resulted in this site also being excluded from the pre-post analyses.

There were 2,027 passing events identified at the nine sites where only post-commencement data was collected, of which 1,378 could be measured. A large number of these observations came from The Esplanade on the Gold Coast.

The main reasons for being unable to measure the passing distance were the event being obscured by vehicles and other large objects, being obscured by glare or shadow, and the event occurring too far from the camera to allow accurate measurement (particularly in the post-data for Grey St).

The mean, median, minimum, maximum and cumulative frequency distribution of passing distances for each site are presented in Appendix 7.

Table 5.3. Observed and measurable passing events with reasons preventing measurement (shaded)

Location		No. of bicycles*	No. of passing events identified	No. of passing events measured	No. obscured by vehicle etc.	No. obscured by glare/ shadow	No. too far from camera
Annerley Rd	Pre Post^	1,934	139 149	91 136	32 23	3 5	13 0
Breakfast Creek	Pre Post^	2,081	84 239	66 148	3 64	5 5	10 22
Cordelia St	Pre Post^	307	37 23	16 14	14 3	2 0	5 6
Grey St	Pre Post^	2,017	145 553	70 213	36 122	4 6	35 214
Montague Rd	Pre Post^	2,183	163 207	98 164	23 12	18 14	19 17
Gladstone Rd	Pre Post^	806	480 4	300 4	93 0	20 0	67 0
Total	**Pre Post^**	**9,328**	**1,048 1,175**	**641 679**			
Sandgate Rd		591	281	212	15	0	54
Mt Sampson Rd		170	34	15	0	0	19
Jacaranda Ave		136	44	29	3	2	10
Noosa-Cooroy Rd		333	51	23	4	0	24
Pacific Blvd		773	17	8	1	0	8
Hope Island Rd		560	427	246	100	14	69
The Esplanade		5,968	1,114	804	83	49	181
Dean St		161	33	27	5	0	1
Bruce Hwy		46	26	14	0	0	12
Total	**Post-only**	**8,738**	**2,027**	**1,378**			
Grand total	**Post**	**18,066**	**3,202**	**2,057**			

* Only counted in post-commencement of trial data collection

^"Pre" data collected for 2 days (Thursday and Sunday); "Post" data collected for 4 days (Thursday – Sunday)

5.3.2 Pre-post comparisons of passing distances

Table 5.4 presents the median passing distances and the percentages of passing distances that were less than one metre at Breakfast Creek Rd. The data are also presented separately for passing events where the cyclists were riding single-file. An analysis of passing distances for cyclists riding single-file versus abreast is presented later.

It can be seen that the median passing distances were all greater than two metres and there were no passing distances of less than one metre measured at Breakfast Creek Rd before or after the introduction of the trial of the new road rule. The atypically large passing distances at this location may have been due to the very wide left lane (5.2m wide northbound and 6.0m wide southbound).

Table 5.4. Median passing distances and percentages less than one metre at Breakfast Creek Rd.

Type of passing event	Median (m)		%<1metre	
	Pre	Post	Pre	Post
All	2.23	2.54	0.00	0.00
All same-lane	2.17	2.29	0.00	0.00
Single-file	2.20	2.46	0.00	0.00
Single-file, same-lane	2.16	2.28	0.00	0.00

5.3.3 Degree of non-compliance with MPD road rule

The degree of compliance with the MPD road rule was assessed by examining the percentage of passing distances that were one metre or greater (where the speed limit was 60 km/h or less) or 1.5 metres (where the speed limit was greater than 60 km/h). All of the post-MPD trial commencement data was used for these analyses, including data from sites where pre-trial data had been collected.

5.3.3.1 Non-compliance at low-speed sites

Table 5.5 shows that the extent of non-compliance with the MPD road rule varied markedly across the sites with a speed limit of 60 km/h or less. Regardless of the type of passing event considered, more than half of the events were non-compliant on Dean St. In contrast, the levels of non-compliance were very low for Breakfast Creek Rd, Jacaranda Ave and Annerley Rd.

The overall non-compliance rate across the seven low-speed sites was 12.1%. The non-compliance rates for the 40 km/h and 60 km/h sites were 13.7% and 8.9%, respectively, however the 60 km/h sites varied from 0.0% to 55.6% non-compliance. Similarly, while the single-lane and double-lane 60 km/h sites had non-compliance rates of 10.4% and 7.9%, respectively, the variation among the sites was substantial. Therefore, among the sites studied, there does not appear to be any clear trends in passing distance according to speed limit or number of lanes.

Table 5.5. Median passing distances and percentages less than one metre at sites with speed limit <=60 km/h

	Annerley Rd	Breakfast Creek Rd	Grey St^	Montague Rd^	Jacaranda Ave^	The Esplanade^	Dean St
Speed limit	60 km/h	60 km/h	40 km/h	60 km/h	60 km/h	40 km/h	60 km/h
All passing events							
Median (m)	1.63	2.54	1.37	1.72	2.48	1.45	0.80
%<1 metre	7.06	0.00	11.27	11.59	3.45	14.30	55.56
All same-lane passing events							
Median (m)	1.63	2.29					0.78
%<1 metre	7.14	0.00					57.69
Single-file passing events							
Median (m)	1.70	2.46	1.37	1.62	2.48	1.43	0.84
%<1 metre	7.06	0.00	10.78	13.67	3.45	14.55	52.00
Single-file same-lane passing events							
Median (m)	1.68	2.28					0.82
%<1 metre	7.14	0.00					54.17

^ Single lane only, so all events are same-lane

5.3.3.2 Non-compliance at high-speed sites

The passing distances at five sites where the speed limit was greater than 60 km/h are summarised in Table 5.6. The prevalence of non-compliance again varied widely across sites, being most common on Mt Sampson Rd (33.3%) and Hope Island Rd (32.0%).

While the passing distances at the high-speed sites were generally greater than those at the low-speed sites, the overall non-compliance rate across the five high-speed sites was 20.9%, which was greater than the average for the low-speed sites. The two single-lane sites (Cooroy-Noosa Rd and Mt Sampson Rd) also had higher speed limits than the other sites, so it was not possible to separately examine the influences of speed limit and number of lanes on compliance rates.

Table 5.6. Median passing distances and percentages less than 1.5 metres at sites with speed limit >60 km/h

	Sandgate Rd	Hope Island Rd	Bruce Hwy, Rockhampton	Cooroy-Noosa Rd^	Mt Sampson Rd^
Speed limit	70 km/h	70 km/h	70 km/h	80 km/h	100 km/h
All passing events					
Median (m)	2.14	2.51	2.71	3.66	1.65
%<1.5 metre	10.38	31.97	7.14	0.00	33.33
All same-lane passing events					
Median (m)	1.97	1.92	2.67		
%<1.5 metre	12.29	40.54	7.69		
Single-file passing events					
Median (m)	1.99	2.55	2.58	3.66	1.65
%<1.5 metre	12.90	29.83	8.33	0.00	33.33
Single-file same-lane passing events					
Median (m)	1.93	1.93	2.41		
%<1.5 metre	13.89	38.06	9.09		

^ Single lane only, so all events are same-lane

5.3.3.3 Non-compliance for single-file versus riding abreast

In the post-commencement data, there were sufficient measurements of passing events when cyclists were riding two or more abreast to allow a comparison with cyclists riding single file at Grey St, Sandgate Rd, Hope Island Rd and The Esplanade. None of the pre-trial data had sufficient cyclists riding abreast to allow this comparison. The data are presented in Table 5.7. The cyclists among the group riding abreast who were closer to the centre of the road are termed the "outside riders".

In the analysis of these data, the figures from the two speed-limit-specific sites were combined using a standard four-fold table chi-square test, and then the proportions non-compliant from these two speed limits were aggregated using inverse variance weights. For the two 40 km/h sites, the combined percentages non-compliant were 13.9% (single) and 20.0% (abreast) which did not differ significantly: χ^2 (1) = 1.37, p = 0.24). For the two 70 km/h sites, the combined percentages non-compliant were 22.0% (single) and 25.7% (abreast) which did not differ significantly: χ^2 (1) = 0.26, p = 0.61. However, if data from all four sites are combined, the single file percentage non-compliant is 15.5% ± 1.0% and abreast is 22.8% ± 3.7%. The difference of 7.3% ± 3.8%, approaches statistical significance (z = 1.92, p = 0.055, 2–sided).

If data from the two road types are combined and a simple chi-square test is performed, the outcome and p-value are quite similar, i.e. marginal significance. The comparison is

weighted quite heavily towards the 40 km/h results since the number of observations in the latter is 976 in total compared with 406 for the 70 km/h sites.

Table 5.7. Median passing distances and percentages non-compliant for passing cyclists riding single-file and abreast

	Grey St^	The Esplanade^	Sandgate Rd	Hope Island Rd
Speed limit	40 km/h	40 km/h	70 km/h	70 km/h
Single-file passing events				
Number measured	167	749	155	181
Median (m)	1.37	1.43	1.99	2.55
% non-compliant	10.78	14.55	12.90	29.83
Single-file same lane passing events				
Number measured			144	134
Median (m)			1.93	1.93
% non-compliant			13.89	38.06
Abreast passing events (outside riders)				
Number measured	32	28	29	41
Median (m)	1.30	1.42	2.22	2.18
% non-compliant	18.75	21.43	6.90	39.02
Abreast same-lane passing events (outside riders)				
Number measured			19	34
Median (m)			1.85	1.85
% non-compliant			10.53	47.06

^ Single lane only, so all events are same-lane

Table 5.7 also shows that the majority of passing events on the multi-lane roads (Sandgate Rd and Hope Island Rd) were same-lane events: drivers did not move from the left lane to the centre lane. On Sandgate Rd, the percentage of same-lane passing events was lower when cyclists were riding abreast than for single-file riders (65.5% versus 92.9%) but this pattern was not found for Hope Island Rd (82.9% versus 74.0%).

5.3.4 Other factors potentially influencing passing distance

Previous research has identified that passing distance for bicycles being overtaken by motor vehicles increases with lane width and the presence of a bike lane but the findings regarding the effects of speed limit, vehicle type and rider factors are mixed (see summary by Love et al., 2012).

The limited number of sites in this study prevented a robust examination of the influence of all of these factors. The analyses presented earlier in this chapter indicated that passing

distance was greater at the sites with speed limits greater than 60 km/h but not sufficiently greater to provide compliance with the MPD road rule, therefore resulting in more non-compliance at higher-speed sites.

Type of overtaking motor vehicle was coded in the video data but there were too few vehicles that were not cars for comparisons of passing distances to be made (see summary in tables in Appendix 7.3). For example, the largest numbers of bicycles being passed by trucks were recorded on Hope Island Road (12) and Gladstone Road (12 pre-trial data). There were 12 bicycles passed by buses on The Esplanade and few bicycles overtaken by motorcycles except at The Esplanade (23).

5.4 Summary and limitations

The actual distance left between cyclists and passing vehicles is the most important impact measure for the evaluation and this was estimated from video observations at 15 sites.

The first component of the observational study attempted to compare lateral passing distances at the same six locations before the commencement of the MPD trial and after the trial had commenced (pre-post analysis). Unfortunately, changes in the site characteristics and camera locations and few passing events at some sites meant that comparable pre-post data was only available for Breakfast Creek Rd. That location had a very wide left lane in each direction and all passing distances were greater than one metre both before and after the rule was introduced (median distances were greater than two metres).

The second component of the study measured the extent of non-compliance with the rule at a range of sites after the commencement of the trial (compliance analysis). The degree of non-compliance varied markedly across the sites, from zero to more than 50%. The overall non-compliance rate across the seven low-speed sites was 12.07%. While the passing distances at the high-speed sites were generally greater than those at the low-speed sites, the overall non-compliance rate across the five high-speed sites was 20.91%, which was greater than the average for the low-speed sites. There were no other clear trends in passing distance according to speed limit or number of lanes.

Comparisons of passing distances and compliance when overtaking cyclists riding in single file versus abreast were possible for two low-speed and two high-speed sites. When the data from all four sites were combined, the percentage non-compliance was almost statistically significantly higher for passing the "outside rider" of a group riding abreast than for a cyclist riding single file (22.8% versus 15.5%).

The limited number of sites in this study prevented a robust examination of the influences of lane width, presence of bicycle lanes and type of overtaking motor vehicle.

No detailed analyses of the observational data have yet been conducted to examine cyclist and driver estimated distances from kerb and centre line (and other lane lines where appropriate); and the number and magnitude of centre line (and other lane lines where appropriate) crossings by motor vehicles.

Passing speed was not measured in the observational data or in the survey. If the introduction of the MPD road rule led to drivers passing cyclists more slowly, then this

would be expected to have road safety benefits in addition to any benefits related to greater passing distances.

6 ANALYSIS OF CRASH, INJURY AND INFRINGEMENT DATA

Crash and injury data from before and after the introduction of the MPD road rule trial were compared to assess the road safety benefits of the new rule. Infringement data were examined to provide a measure of the practical implementation of the MPD road rule. Given that the commencement of the trial of the new road rule was accompanied by increases in penalties for infringements by cyclists, all cyclist infringement data was also analysed to measure whether there was any general increase in cyclist-related enforcement which could also contribute to improvements in cycling safety.

6.1 Methodology

Delays in data coding and availability meant that finalised crash records for non-fatal crashes were not available for the period from commencement of the MPD trial. Similarly, no hospital admission or emergency department presentation data were available for this period. In addition, the crash data analyses could not control for any potential changes over time in the amount of cycling because it was difficult to find cycling participation data that is relevant state-wide and covers the period of interest. Similarly, the impact of changes to other cycling rules on cycling participation and rider behaviour was not able to be assessed in the crash data analyses.

Therefore, the project team was constrained in their ability to assess the impact of the road rule on road safety. It is recommended that these data are analysed once available.

6.1.1 Data sources

Data for fatal crashes were provided by TMR from the Queensland Road Crash Database and preliminary data for crashes of all severity involving cyclists were provided by the Queensland Police Service[1]. A QUT ethics exemption applied to this phase of the study as it involved the analysis of secondary non-identifiable data. For the QPS data, an ethics exemption applied because the data was not complex (simple counts) and was de-identified.

A road traffic crash is defined as a crash reported to police which resulted from the movement of at least one motor vehicle on a road and involved death or injury to any person, or property damage. A road traffic crash must meet the following criteria:

- the crash occurs on a public road, and
- a person is a fatality or a casualty, or
- the value of the property damage is:
- $2500 to property other than vehicles; or
- at least one vehicle was towed away.

[1] Data is preliminary and subject to change. Data was extracted from QPRIME Zap Analysis. Data extracted from QPRIME Zap Analysis has not been cleansed and may include crashes classified as "out of scope" (that is, do not meet TMR criteria for a road crash). Data is counting crashes, not number of units involved or casualties. It is possible two or more bicycles were involved in one crash, so the number of bicycles involved in crashes may be more. Severity of crash refers to the most severe level of injury that occurred in the crash. It is possible that the most severely injured person in the crash was not a bicycler rider or bicycle pillion.

In Queensland, a crash is classified as fatal if it results in the death of a person within 30 days from injuries sustained in the crash. A hospitalised crash is one that results in the most severely injured person being transported to hospital as reported by police. A medical treatment crash is when the most severely injured person receives medical treatment but is not taken to hospital and a minor injury crash is when the most severely injured person is injured but not treated (TMR, 2014).

Infringement data was provided by TMR from the Transport Registration and Integrated Licensing System (TRAILS). Violations of the MPD road rule were provided per month, per QPS Division[2], per infringement type for the period April 2014 to June 2015. Counts per month and per Queensland Police Division were provided from April 2012 to June 2015 for all bicycle helmet infringements and all other cycling related infringements. The exact date of crash and offence was not provided, so the before and after periods were not able to be precisely determined. As a result, the post-commencement period includes six days in which the legislation did not yet apply. However, as the media surrounding the MPD road rule change started from 1 April 2014, this was unlikely to have significant impact.

Queensland Health and the Queensland Injury Surveillance Unit (QISU) advised the project team that no cleansed data was available for the post-MPD trial period (from 7 April, 2014). Therefore, it was not possible to determine the impact of the road rule on emergency presentations and/or hospitalisations for cyclists and motor vehicle occupants.

6.1.2 Data analysis

6.1.2.1 Fatalities from crashes

The numbers of bicycle fatalities resulting from crashes were totalled for the two years prior to the introduction of the trial of the MPD road rule (April 2012 – March 2014) and for the period following the introduction of the trial of the MPD road rule (April 2014 – July 2015). The rate of bicycle fatalities per month was calculated for the two periods. For the same periods, the rate of all other fatalities resulting from road crashes was also calculated to provide an indicator of the overall trend in road fatalities.

6.1.2.2 Bicycle-related injury crashes

The number of bicycle-related injury crashes for all severities was totalled for the period prior to the introduction of the trial of the MPD road rule (April 2012 – March 2014) and for the period following the introduction of the trial of the MPD road rule (April 2014 – October 2015). The rate of bicycle crashes per month was calculated for the two periods. These rates are reported for each severity level and for the total.

In order to take into account the trend in bicycle-related serious injury crashes before the MPD trial, an interrupted time series analysis was conducted. This analysis allowed for the estimation of the level and trend in numbers of bicycle-related serious injury crashes

[2] QPS Division is based on the issuing QPS Officer's police station and may not represent the exact location where the infringement occurred.

per month before the trial and changes in the level and trend following the introduction of the MPD trial.

$$Y_t = \beta_0 + [\beta_1 \times time_t] + [\beta_2 \times intervention_t] + (\beta_3 \times time\ after\ intervention_t) + e_t$$

Where, Y_t is the number of crashes per month; *time* is a continuous variable indicating time in months before the start of the trial; *t* is the observation period; *intervention* is an indicator of whether it is before or after; *time after intervention* is the time in months after the trial commenced; β_0 is the base level of the outcome at the beginning of the series; β_1 is the base trend; β_2 is the change in level in the post-intervention segment; β_3 is the change in trend in the post-intervention segment; e_t is error.

6.1.2.3 MPD infringements

Monthly counts of MPD road rule infringements from the commencement of the trial (April 2014) to the latest available data (June 2015) was also provided. Numbers of MPD offences were tabulated according to QPS District and QPS Region.

6.1.2.4 Bicycle-related infringements

Monthly counts of bicycle-related infringements from the introduction of the trial (April 2014) to the latest available data (June 2015) was also provided.

6.1.2.5 Bicycle helmet infringements

The rate of bicycle helmet infringements per month was calculated for the before period (April 2012 – March 2014) and the after period (April 2014 – June 2015). These rates were also calculated separately for each QPS District and Region.

Confidence intervals around the crash and infringement rates were calculated using the following formula:

$$Lower\ 95\%\ CI = Rate - 1.96 \times SE$$

$$Upper\ 95\%\ CI = Rate + 1.96 \times SE$$

Where:

$$SE = \frac{\sqrt{Fatalities}}{Months}$$

In addition, rate ratios were calculated from pre to post. Confidence intervals for each of the rate ratios were also calculated based on an alpha level of .05. These were calculated as follows:

$$95\%\ \text{Lower confidence level} = \text{Exp}\ (\ln(Rate\ Ratio) - 1.96 \times SE)$$

$$95\%\ \text{Upper confidence level} = \text{Exp}\ (\ln(Rate\ Ratio) + 1.96 \times SE)$$

Where: $SE = \sqrt{\left(\frac{1}{X_1} + \frac{1}{X_2}\right)}$

Where: X_1 = Number of bicycle crashes/bicycle helmet infringements before and X_2 = Number of bicycle crashes/bicycle helmet infringements after.

Interpretations of statistically significant difference in rates were based on the confidence interval not including the value 1.

6.2 Results

6.2.1 Fatalities from crashes

There were 23 cyclist fatalities resulting from road crashes between April 2012 and July 2014 and 10 cyclist fatalities between April 2014 and July 2015. The rates per month are displayed in Table 6.1. There was a statistically significant 14% reduction in the rate of fatalities for other road users from before to after the MPD road rule change. While there was a 35% reduction in the rate of fatalities for cyclists, the small base numbers meant that this reduction was not statistically significant.

Table 6.1. Fatality rates per month for cyclists and other road users for the before and after MPD road rule change periods

	Rate per month (95% CI)		Rate ratio	95% CI
	Before	After		
Cyclists	0.96 (0.57 – 1.35)	0.55 (0.27 – 0.78)	0.65	0.26 – 1.15
Other road users	21.79 (19.92 – 23.66)	18.75 (12.54 – 14.63)	0.86	0.75 – 0.99

6.2.2 Bicycle injury crashes in the before and after periods

Table 6.2 shows the number of crashes by severity for the before and after periods according to the preliminary police data. The rates per month are shown in Table 6.3. There were no statistically significant changes before the MPD trial to after for hospitalisation, serious (hospitalisation and fatality), or minor injury crashes involving cyclists. There was however a statistically significant decrease in medical treatment crashes and all injury crashes from before to after the MPD trial.

Table 6.2: Bicycle crashes (by severity) for the before and after trial periods

	Number of crashes	
	Before	After
Hospitalisation	650	474
Serious (fatal and hospitalisation)	674	485
Medical treatment	487	264
Minor injury	211	201
All injury crashes	1,372	950

Table 6.3. Bicycle crash rates per month (by severity) for the before and after trial periods

	Rate per month (95% CI)		Rate ratio	95% CI
	Before	After		
Hospitalisation	27.08 (25.00 – 29.17)	24.95 (23.17 – 26.73)	0.92	0.82 – 1.04
Serious (fatal and hospitalisation)	28.08 (25.96 – 30.20)	25.53 (23.73 – 27.32)	0.91	0.81 – 1.02
Medical treatment	20.29 (18.49 – 22.09)	13.89 (12.57 – 15.22)	0.68	0.58 – 0.79
Minor injury	8.79 (7.61 – 9.98)	10.58 (9.42 – 11.74)	1.20	0.99 – 1.46
All injury crashes	57.17 (54.14 – 60.19)	50.00 (47.48 – 52.52)	0.87	0.81 – 0.95

The results of the interrupted time series analysis showed that before the commencement of the MPD trial, there was an average of 28 serious bicycle-related crashes per month. There were no statistically significant month-to-month changes in the number of serious bicycle-related crashes in the two years before the trial commenced ($p = .949$). Following the commencement of the trial until October 2015 there was a statistically significant change in the trend with a month-to-month decreasing trend evident ($p = .001$) (see Figure 6.1). This resulted in 48.5 fewer serious bicycle crashes (2.7 per month) in the post-commencement period than would have been expected based on extrapolation from the pre-trial trend. However, these results relate to all serious bicycle crashes, and the data did not allow crashes which might have been affected by the MPD road rule to be identified.

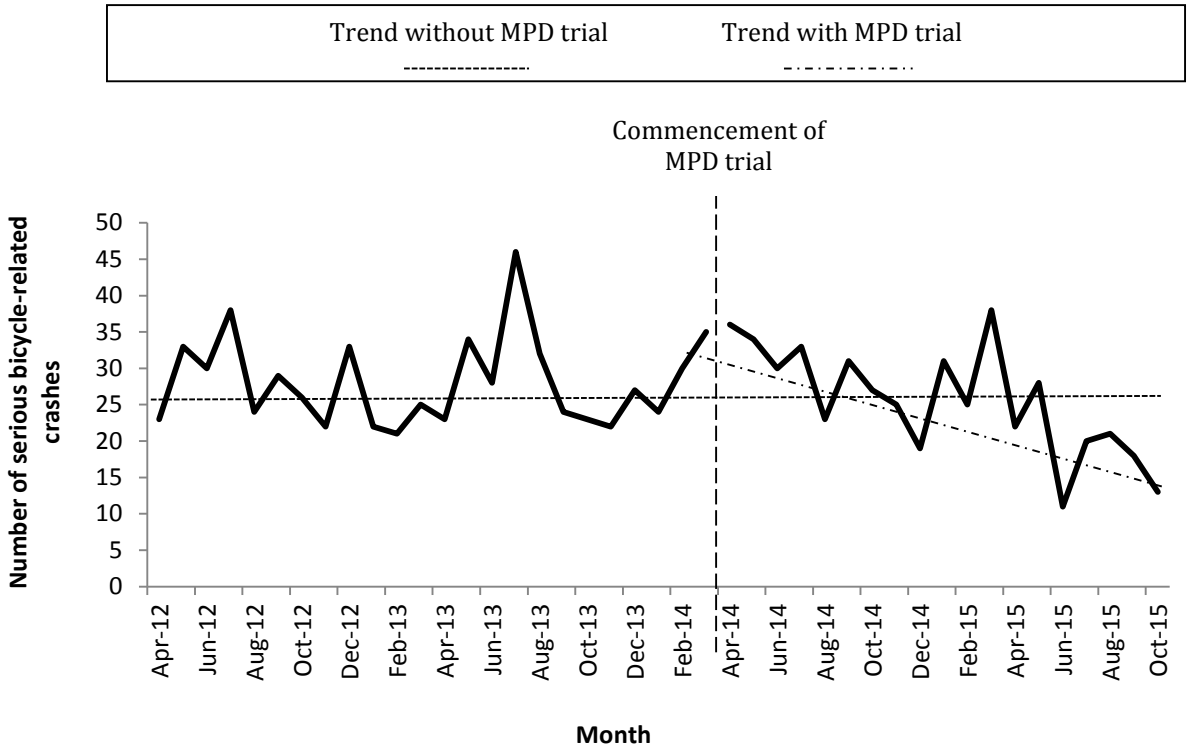

Figure 6.1. Trend in serious bicycle-related injury crashes per month from before and after the MPD trial commenced

6.2.3 Minimum passing distance offences

There were 60 MPD infringements following the introduction of the road rule until 30 June 2015. A list of the QPS Districts and Regions and the counts of these infringements are presented in Table 6.4 and 6.5.

Table 6.4. Number of minimum passing distance infringements for each QPS District

QPS District	Number
North Brisbane	18
South Brisbane	15
Townsville	5
Capricornia	3
Far North Queensland	3
Gold Coast	3
Sunshine Coast	3
Darling Downs	2
Logan	2
Wide Bay Burnett	2
Ipswich	1
Moreton	1
Mount Isa	1
South West	1
Mackay	0

Table 6.5. Number of minimum passing distance infringements for each QPS Region

QPS Region	Number
Brisbane	33
Northern	9
Central	8
South Eastern	5
Southern	5

6.2.4 *Bicycle-related infringements*

The rates for other bicycle-related infringements were also examined to provide an indicator of whether the general level of enforcement of bicycle safety changed after the introduction of the MPD road rule. As shown in Table 6.6, the majority of bicycle-related infringements were helmet infringements.

Table 6.6. Number of bicycle-related infringements of each type after the MPD road rule change

Infringement type	N	%
Bicycle Offence – Helmet	5,945	71.6
Bicycle – Fail to Stop/Give Way	725	8.7
Mobile Phone Offence – Bicycle	255	3.1
Bicycle – Disobey Traffic Sign	156	1.9
Bicycle Offence – Follow Too Closely	128	1.5
Bicycle – Disobey Traffic Light	105	1.3
1M/1.5M Passing Offence	60	0.7
Bicycle – Consume Liquor	27	0.3
Bicycle Offence – Level Crossing	23	0.3
Bicycle Offence – Obstruction	11	0.1
Bicycle – Intersection	4	0.1
Bicycle Offence – Child Crossing	4	0.1
Bicycle Offence – Transit/Bus Lane	3	< 0.1
Bicycle – Emergency Vehicle	2	< 0.1
Bicycle – Tram Offence	2	< 0.1
Bicycle Offence – Wheeled Recreation Device	1	< 0.1
Bicycle Offence – Other*	857	10.3

* Includes no brakes or horn, no lights at night, more passengers than was designed for etc.

In terms of before and after the road rule change, there was a significantly higher rate of bicycle-related (non-helmet) infringements after the road rule change (RR = 1.61, 95% CI [1.52 – 1.70]). See Table 6.7.

Table 6.7. Bicycle-related (non-helmet) infringement rates per month before and after the MPD road rule change

	Number of infringements	Rate per month
Before	2,293	95.5
After	2,303	153.5

Table 6.8 shows the rate of bicycle-related (non-helmet) infringements per month and the rate ratio from before to after for each QPS district. The rate of bicycle-related infringements per month significantly increased in all districts except Far North Queensland, where there was no statistically significant change, and North Brisbane, where there was a statistically significant reduction from before to after.

Table 6.8. Bicycle-related (non-helmet) infringement rates per month before and after the MPD road rule change in each QPS district

	Rate per month		Rate ratio	95% CI
District	**Before**	**After**		
Capricornia	3.54	8.20	2.32	1.76 – 3.05
Darling Downs	3.04	8.60	2.83	2.12 – 3.77
Far North Queensland	9.96	10.33	1.04	0.85 – 1.27
Gold Coast	8.17	15.13	1.85	1.53 – 2.24
Ipswich	2.04	5.47	2.68	1.88 – 3.81
Logan	1.50	4.73	3.16	2.11 – 4.71
Mackay	2.96	5.27	1.78	1.29 – 2.45
Moreton	4.96	10.13	2.04	1.61 – 2.60
Mount Isa	0.21	0.80	3.84	1.35 – 10.90
North Brisbane	35.92	30.00	0.84	0.75 – 0.94
South Brisbane	7.54	24.53	3.25	2.72 – 3.89
South West	1.75	4.27	2.44	1.65 – 3.60
Sunshine Coast	2.79	6.87	2.46	1.81 – 3.35
Townsville	2.42	8.13	3.37	2.46 – 4.60
Wide Bay Burnett	6.58	15.87	2.41	1.97 – 2.95

The rate of bicycle-related (non-helmet) infringements per month statistically significantly increased in all QPS Regions (see Table 6.9).

Table 6.9. Bicycle-related (non-helmet) infringement rates per month before and after the MPD road rule change in each QPS region

	Rate per month		Rate ratio	95% CI
Region	**Before**	**After**		
Brisbane	43.46	54.53	1.25	1.15 – 1.38
Central	15.88	36.20	2.28	2.00 – 2.60
Northern	12.58	19.27	1.53	1.30 – 1.80
South Eastern	9.67	19.87	2.06	1.73 – 2.44
Southern	11.79	28.47	2.41	2.08 – 2.81

6.2.5 Bicycle helmet infringements

There was a significantly lower rate of bicycle helmet infringements after the road rule change (RR = 0.84, 95% CI [0.81 – 0.87]). See Table 6.10.

Table 6.10. Bicycle helmet infringement rates per month before and after the MPD road rule change

	Number of infringements	Rate per month
Before	11,346	472.8
After	5,945	396.3

Table 6.11 shows the rate of bicycle helmet infringements per month and the rate ratio from before to after for each QPS district. The rate of bicycle helmet infringements per month significantly decreased in the following districts:

- Capricornia
- Darling Downs
- Far North Queensland
- Gold Coast
- Moreton
- North Brisbane
- South West
- Sunshine Coast
- Townsville
- Wide Bay Burnett

There was a statistically significant increase in Ipswich.

Table 6.11. Bicycle helmet infringement rates per month before and after the MPD road rule change in each QPS district

	Rate per month		Rate ratio	95% CI
District	**Before**	**After**		
Capricornia	28.21	24.07	0.85	0.75 – 0.97
Darling Downs	20.00	15.73	0.79	0.67 – 0.92
Far North Queensland	46.08	33.87	0.73	0.66 – 0.82
Gold Coast	57.96	41.67	0.72	0.65 – 0.79
Ipswich	20.63	25.60	1.24	1.09 – 1.42
Logan	18.50	15.87	0.86	0.73 – 1.00
Mackay	15.54	13.33	0.86	0.72 – 1.02
Moreton	53.33	42.13	0.79	0.72 – 0.87
Mount Isa	4.96	4.87	0.98	0.73 – 1.31
North Brisbane	43.83	32.00	0.73	0.66 – 0.81
South Brisbane	24.88	25.80	1.04	0.91 – 1.18
South West	20.33	16.87	0.83	0.71 – 0.97
Sunshine Coast	30.79	24.73	0.80	0.71 – 0.91
Townsville	29.17	22.73	0.78	0.68 – 0.89
Wide Bay Burnett	49.71	42.40	0.85	0.77 – 0.94
Unknown	8.83	10.20	1.15	0.94 – 1.42

The rate of bicycle helmet infringements per month significantly decreased in all QPS Regions (see Table 6.12).

Table 6.12. Bicycle helmet infringement rates per month before and after the MPD road rule change in each QPS region

	Rate per month		Rate ratio	95% CI
Region	**Before**	**After**		
Brisbane	68.71	57.80	0.84	0.77 – 0.91
Central	124.25	104.53	0.84	0.79 – 0.89
Northern	80.21	61.47	0.77	0.71 – 0.83
South Eastern	76.46	57.53	0.75	0.69 – 0.82
Southern	114.29	100.33	0.88	0.82 – 0.93
Unknown	8.83	10.20	1.15	0.94 – 1.42

6.3 Summary and limitations

The delays in data availability largely prevented any direct assessment of the benefits of the road rule in terms of reductions in crash occurrence and severity from the road crash data or of injury occurrence and severity from the hospital emergency presentations and admissions data. Realistically, it may not be until the end of 2016 that any real assessment of changes in crashes and injuries can be made. By that time, sufficient cleansed road crash data (and hospital data) should be available to make at least an initial estimate of the road safety outcomes of the MPD road rule trial in terms of overall cyclist crashes and particular bicycle-car and car-car crash types that reflect changes in behaviour resulting from the new road rule.

There were 23 cyclist fatalities resulting from road crashes between 1 April 2012 and 31 March 2014 and 10 cyclist fatalities between 1 April 2014 and 31 July 2015. There was a statistically significant 14% reduction in the rate of fatalities for other road users from before to after the road rule trial. While there was a 35% reduction in the rate of fatalities for cyclists, this was not statistically significant.

Given the lags in official road crash data, analyses of uncleansed preliminary police data were undertaken. These analyses showed that during the two years prior to the commencement of the MPD trial, there was an average of 28 serious (fatal and hospitalisation) bicycle-related crashes per month with no statistically significant trend in the monthly number of serious bicycle-related crashes in the two years before the trial commenced. From the commencement of the trial until October 2015 there has been a statistically significant decreasing trend. This has resulted in 48.5 fewer serious bicycle crashes (2.7 per month) in the post-commencement period than would have been expected based on extrapolation from the pre-trial trend.

There were 60 MPD infringements following the introduction of the road rule until 30 June 2015, comprising 0.7% of all bicycle-related infringements. Just over half of these were issued in the North Brisbane and South Brisbane QPS Districts.

The rates of infringements for other bicycle-related offences were also examined to provide an indicator of whether the general level of enforcement of bicycle safety changed after the introduction of the MPD road rule. The total number of bicycle-related infringements per month was similar before and after the MPD road rule was introduced (568 versus 549). However, this overall figure masked a statistically significant reduction in the rate per month of bicycle helmet infringements (which comprise more than 70% of bicycle-related infringements) and a significantly higher rate of other bicycle infringements after the road rule change. There is no clear rationale for why these differing trends occurred, but the simplest assumption is that the total level of enforcement for bicycle safety remained reasonably constant.

Delays in data availability meant that the only non-fatal road crash data analysed was preliminary crash numbers from QPS. There is a need to wait for detailed crash data to identify passing too close crashes (bicycle-car) and crashes due to crossing centre lanes (car-car) and for hospital data which may allow MPD-relevant crashes to be identified from text descriptions.

The crash data analyses did not control for any potential changes over time in the amount of cycling because it was difficult to find cycling participation data that is relevant state-

wide and covers the period of interest. Similarly, the impact of changes to other cycling rules on cycling participation and rider behaviour was not able to be assessed in the crash data analyses.

7 DISCUSSION AND CONCLUSIONS

The broad objective of this project was to evaluate the effectiveness of the new MPD road rule in terms of its:

1. practical implementation,
2. impact on road users' attitudes and perceptions; and
3. road safety benefits.

The evaluation included the following components:

- Review of correspondence received by TMR;
- Interviews and focus groups with Queensland Police Service officers;
- Road user survey;
- Observational study; and
- Crash, injury and infringement data analysis.

7.1 Practical implementation

Information about the practical implementation of the rule was gathered from the correspondence received by TMR, the interviews and focus groups with QPS officers, the road user survey and the analysis of infringement data.

7.1.1 Practicality of enforcement

There were only 60 MPD infringements issued from the commencement of the road rule trial until 30 June 2015. The comments of QPS officers interviewed suggest that the low number of infringement notices issued stemmed from practical difficulties in enforcing the road rule. They noted difficulties in collecting sufficient evidence to withstand potential contest in Court and therefore resistance to allocating large amounts of resources to collection of evidence. While officers who had issued TINs generally thought that camera footage was useful, some other officers who had not issued TINs were concerned about distortion in videos rendering it difficult to reliably estimate distances. The challenges of measuring passing distances from video were also evident in the observational study undertaken as part of this evaluation, where about one-third of the passing events identified could not be measured because of obscuration by vehicles or glare or the distance being too great. The potential for development and use of improved technology for both enforcement and research in this area should be investigated.

Despite the difficulties of enforcement leading to few infringements being issued, officers generally considered that the introduction of the road rule had led to improvements in cyclist safety. The survey data suggests that drivers may be overestimating the ability of police to enforce the rule and the extent of enforcement of the rule, leading to a degree of deterrence that is greater than expected from the small number of infringements issued.

The results of the current study are similar to those of the process evaluation of minimum passing laws in 20 US states (Brown, Farley, Hawkins & Orthmeyer, 2012). In the US, the stance of state and local police departments towards the law was found to vary between locations, with police departments opposed to its introduction considering the law to be

unenforceable and a burden to implement. In general, there was little enforcement of the minimum passing law, with very few infringements issued (and little accurate data on numbers of citations issued).

7.1.2 Practicality in particular road environments

The drivers who wrote to TMR regarding the MPD rule identified particular situations such as narrow, windy roads as places where the rule was not practical. They also queried how the road rule would be applied if they were stopped at a red traffic signal and a cyclist came up on their left-hand side. Many of them objected to cyclists being allowed to ride two-abreast and considered that this practice made the MPD rule infeasible. However, when survey participants were asked to rate how easy it was for the driver to comply with the rule in 14 situations, the absence of bike lanes and the presence of oncoming traffic (for single lane roads) or traffic in adjacent lanes (for multi-lane roads) influenced the ratings more strongly than whether cyclists were riding single file or two-abreast.

7.1.3 Ability to estimate passing distance

Drivers' ability to comply with the MPD rule may depend on their ability to estimate what is "at least one metre". There is evidence in the research literature that drivers may have difficulty in doing so accurately. Baumberger, Flückiger, Paquette, Bergeron and Delorme (2005) noted that drivers are likely to experience difficulty in judging lateral distances because the body of their vehicle can partially occlude lateral vision when they are approaching an object on the kerbside. In a psychophysical experiment, Levin and Haber (1993) reported that (even without obstruction) viewers are likely to overestimate perpendicular distances (both absolutely and relative to distances parallel to the line of sight).

Only about half of the drivers surveyed were "Certain" or "Very certain" that they could judge if they have left at least one metre (or 1.5 metres in a higher speed zone) when overtaking a bicycle and they were less certain that other drivers could judge correctly. In the interviews, QPS officers stated that some drivers appear to be leaving very large distances when overtaking bicycles and that this may be a problem for oncoming vehicles. While there was no crash data available to assess the extent of this potential problem, it is worthwhile to note that none of the more than 4,000 drivers surveyed had been involved in a crash of this kind in the previous year, although 15.1% reported a near-miss with an oncoming vehicle while they were overtaking a bicycle and 9.0% reported near-misses with other vehicles travelling in the same direction.

7.2 Impact on road users' attitudes and perceptions

Despite the concern expressed by some police officers in the interviews and focus groups that motorists may have forgotten about the rule, only 1.5% of cyclists and 5.2% of drivers surveyed said they did not know that the MPD road rule had been introduced. Almost all cyclists but only about half of the drivers surveyed agreed or strongly agreed with the MPD road rule.

More than a quarter of drivers surveyed said that the MPD rule had made them more aware of cyclists and more than 40% of drivers agreed or strongly agreed that they were more aware of bicycle riders when driving on the road than 12 months ago. However, almost half of the drivers disagreed or strongly disagreed that their empathy for bicycle

riders has increased in the last 12 months. In addition, almost 30% of drivers disagreed that they had observed fewer incidents of road rage between motorists and bicyclists compared to 12 months ago. The percentage of cyclists reporting that drivers deliberately drove too close or tailgated them was similar in the current study to that reported by Heesch et al. (2010) in their 2009 survey. Thus it appears that drivers have become more aware of cyclists, but have not necessarily improved in their attitudes towards them.

7.3 Road safety benefits

The road safety benefits were assessed in terms of bicycle crash trends, observed passing distances and compliance rates, and self-reported compliance with the MPD road rule.

7.3.1 Bicycle crash trends

The delays in data availability prevented any direct assessment of the benefits of the road rule in terms of reductions in crash occurrence and severity from the official road crash data, or in terms of injury occurrence and severity from the hospital emergency presentations and admissions data. Realistically, it may not be until the end of 2016 that any robust assessment of changes in crashes and injuries can be made.

Analyses of uncleansed preliminary police data showed that during the two years prior to the commencement of the MPD trial, the number of serious (fatal and hospitalisation) bicycle-related crashes per month showed no statistically significant trend but that from the commencement of the trial until October 2015 there has been a statistically significant decreasing trend. This has resulted in an estimated 48.5 fewer serious bicycle crashes in the post-commencement period than would have been expected based on extrapolation from the pre-trial trend.

The extent to which the reduction in serious bicycle crashes can be attributed to the introduction of the MPD road rule is unclear. A better understanding of the factors underpinning this change may be possible when a longer period of data and more detailed information becomes available which will allow identification of those crashes likely to have been affected by the MPD road rule. However, the reduction is consistent with the views expressed by many of the police interviewed and the cyclists and drivers surveyed that the introduction of the MPD road rule has made it safer for cyclists.

7.3.2 Passing distances

The actual distances left between cyclists and passing vehicles were estimated from video recordings at 15 sites.

The first component of the observational study attempted to compare lateral passing distances at the same six locations before the commencement of the MPD trial and after the trial had commenced (pre-post analysis). Unfortunately, changes in the site characteristics and camera locations and few passing events at some sites meant that comparable pre-post data was only available for Breakfast Creek Rd. That location had a very wide left lane in each direction and all passing distances were greater than one metre both before and after the rule was introduced (median passing distances were greater than two metres).

After the MPD road rule was introduced, the degree of non-compliance varied markedly across the sites, from zero to more than 50%. While the passing distances at the high-speed sites were generally greater than those at the low-speed sites, they still resulted in lower levels of compliance at the high-speed sites. This contrasts with the survey results which showed no differences in self-reported compliance levels or the perceived ease of compliance between lower and higher speed locations. The difficulty experienced by drivers in judging passing distances may have contributed to this discrepancy between the patterns in the observed and reported passing distances.

7.4 Limitations

The most significant limitation in the evaluation of the MPD road rule is the lack of comprehensive data from before the commencement of the trial. This is true for all of the components of the evaluation. While attempts were made to use pre-existing data as part of the survey and the collection of observational data, only limited comparisons were possible.

In relation to measuring the practical implementation of the MPD road rule:

- The number of QPS officers in the interviews and focus groups was relatively small (although the degree of concordance among the responses suggested that similar results would have been obtained if the sample was larger).
- No objective data was collected on how well drivers and cyclists can judge lateral passing distances (despite earlier research suggesting it may be poor).
- It is unclear how well drivers and cyclists can estimate their ability to judge lateral distances.

In relation to measuring the impact on road users' attitudes and perceptions:

- There was no evidence collected on whether the introduction of the MPD road rule encouraged people to take up riding because it now seems safer to them.
- Many cyclists surveyed rode a lot. No analyses have yet been conducted on the survey data in relation to whether the attitudes and perceptions of cyclists who ride less (who are arguably more representative of all riders) differ from those who ride a lot. Future analyses should also examine whether drivers who ride occasionally have different attitudes and perceptions than those who don't ride at all.

In relation to measuring the road safety benefits of the MPD road rule:

- Delays in data availability meant that the only non-fatal road crash data analysed was preliminary crash numbers from QPS. There is a need to wait for detailed crash data to identify passing too close crashes (bicycle-car) and crashes due to crossing centre lanes (car-car) and for hospital data which may allow MPD-relevant crashes to be identified from text descriptions.
- The crash data analyses did not control for any potential changes over time in the amount of cycling because it was difficult to find cycling participation data that is relevant state-wide and covers the period of interest. Similarly, the impact of changes to other cycling rules on cycling participation and rider behaviour was not able to be assessed in the crash data analyses.

- No detailed analyses of the observational data have yet been conducted to examine cyclist and driver estimated distances from kerb and centre line (and other lane lines where appropriate); and the number and magnitude of centre line (and other lane lines where appropriate) crossings by motor vehicles.
- There were no measures of passing speed in the observational data or in the survey. If the introduction of the MPD road rule led to drivers passing cyclists more slowly, then this would be expected to have road safety benefits in addition to any benefits related to greater passing distances.

7.5 Conclusions

In terms of practical implementation, the MPD rule has been difficult for police to enforce and drivers have expressed concern about the ease of compliance on narrow and windy roads and where there is adjacent or oncoming traffic. Both the survey and published research suggest drivers may find it hard to accurately estimate the minimum distance. QPS officers commented that this may result in drivers leaving very large distances, resulting in potential conflicts with oncoming vehicles. None of the drivers surveyed had been involved in such a crash in the previous year, but some reported near-misses, implying that there is a need for crash data to be monitored in the future.

Despite the problems of practical implementation, drivers reported being more aware of bicycle riders when driving on the road than 12 months ago. Most riders and drivers surveyed had observed motorists giving bicycle riders more room when overtaking than they used to. However, there was no reported change in empathy for bicycle riders or in the experience of incidents of harassment between motorists and bicyclists. Thus it appears that drivers have become more aware of cyclists, but their attitudes towards cyclists have not necessarily changed.

It is premature to draw conclusions regarding the road safety benefits of the road rule at this stage. Detailed crash and injury data are not yet available for the post-commencement period and more analyses of the observational data are needed before a detailed understanding of actual passing distances can be reached. Analyses of preliminary police crash data suggests that 48.5 fewer serious bicycle crashes occurred in the first 18 months after the MPD rule was introduced than would have been expected based on extrapolation from the pre-trial trend. The extent to which this reduction can be attributed to the introduction of the MPD road rule is unclear but it is consistent with the views expressed by many of the police interviewed and the cyclists and drivers surveyed that the introduction of the MPD road rule has made it safer for cyclists.

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APPENDIX 1 SUMMARY OF CORRESPONDENCE

A summary of correspondence received by TMR from the general public regarding the MPD road rule is provided in the following pages.

Corr. #	Road user type	Form	Knows rule	Detail	Under-stands rule	Accepts rule	Relates to extent of compliance	Self-perceived ability to comply		Motorists awareness	Particular scenario addressed	Other issue
1	Cyclist	Email	Query	Where does the 1m start; Does any action by the cyclist (eg. moving to avoid debris/drain/car door) affect the implementation of the legislation; Does having no option as a driver justify leaving less than 1m	Yes	Yes	No	N/A				Subsequent correspondence raises an issue of police action/attitudes when a complaint is raised
2	Driver	Email	Yes		Yes	No	No	N/A				Asks where to find legislation (to read) Asks to prohibit riding 2 abreast, particularly where there are narrow/no shoulders
3	Driver	Minister	Yes		Yes	No	No	Difficult (unable to change lanes) during peak hour			Concerned about ability to comply in peak hour, and requested Bruce Highway (in Townsville) to be widened	
4	Driver	Email	Yes		Yes	No	No	N/A				Identifies rules that should apply to cyclists (must ride to left edge of road, not permitted to ride 2 abreast on roads with only 1 traffic lane in each direction, must ride in marked bicycle lane, must signal when overtaking another cyclist, must not ride on roads with a single lane in each direction if speed limit >60km/h)
5	Both driver and cyclist	Web contact form	Yes		Yes	No	No	N/A				Feels it is unworkable, and unjust; That the rule is not reciprocal; level of enforcement of bicycle infringements

6	Driver	Email	Query	Wishes to know what penalties apply to cyclists who "deliberately close the gap between themselves and a motor vehicle?"	Yes	No	No	N/A			
7	Driver	Email	Yes		Yes	Yes	No	N/A			Cyclist lane positioning (wishes to know what penalties are in place for cyclists who ride on/adjacent to the right lane edge)
8	Driver	Email	Yes		Yes	?	No	N/A			Is concerned about the provision to allow drivers to cross centre lines to overtake cyclists (wants this provision removed, or more education on the dangers of crossing the centre line)
9	Driver	Email	Yes		Yes	Yes	No	N/A			Cyclist lane positioning; riding more than 2 abreast; Registration of bicycles
10	"out of scope"										
11	Driver	Email	Yes		Yes	No	No	N/A		Apparently drivers were taught to keep to the left of the roadway, and not in the centre	Roads are too narrow, and believes permitting crossing centre lines is dangerous
12	Driver	Email	Yes		Yes	No	No	N/A			Why road rules concerning push bikes aimed at cyclists; Lack of enforcement for cyclists; Children shouldn't be allowed on roads; Bicycles must ride single file
13	Driver	Email	Yes		Yes	No	No	Yes	Local roads narrow and windy, climbs a mountain with many blind corners and sheer drop offs		
14	Driver	Email	Yes		Yes	No	No	N/A	Lack of road width		Cyclists do not pay registration, should not be on the road, must use bike

										lanes, and do not obey traffic laws
15	? Driver	Letter?	Yes		Yes	Yes	No	N/A		Okay with waiting to overtake, concerned about when traffic event causes traffic to halt and cyclists can make way ahead of cars, so cars have to overtake again
16	? Driver	Email	Yes		Yes	Yes	No	N/A		Wishes to limit riders ability to ride 2 abreast (with the Utah 2 abreast rule)
17	Driver	Email	Query	Wants clarification of what happens when a cyclist rides in the left-hand gutter up to traffic lights (who must move for who), what happens if the road geometry prevents overtaking of slow cyclist?	Yes	N?	No	N/A		Could cause road rage
18	Driver	Letter?	Yes		Yes	No	No	N/A	1: scenario where a vehicle overtaking a bicycle did not wait until there was a space in the adjacent lane before merging in the right lane) 2: lane positioning of cyclists	
19	Driver	Minister	Yes		Yes	No	No	N/A	Involved in a near-miss, where truck overtaking a cyclist crossed a double white line and almost struck his vehicle	Bicycles travelling on roads >70km/h should be registered; change rule so it is never considered safe to cross double white line on a bend; prohibit cyclists from certain roads; prohibit cyclists on roads if there is a off-road alternative
20	? Driver	Letter?	Yes		Yes	No	No	N/A		Does not condone allowing drivers to cross centre lines; Recommends cycling infrastructure be funded through $300 p/a registration fee with tolls for some bicycle infrastructure; riders over 16 years should be licensed

21	Driver	Email	Query	What happens when waiting at traffic light queue, and cyclists proceed through waiting traffic and position themselves at head of queue	Yes	?	No	N/A		
22	Cyclist	Email	Yes		Yes	N/A	No	N/A		Wishes the minister/police commissioner to provide a synopsis of life as a cyclist/campaigner in Brisbane, for publication in a UK blog
23	"out of scope"									
24	Driver	Email	Query	Wants to know if a push bikes is classed as a vehicle when on the road, and if they are why aren't they required to be registered and have 3rd party insurance (if they aren't required, but are allowed on road, why aren't skateboards/scooters/wheelchairs allowed on the road)	Yes	Yes	No	N/A		If they are classed as a vehicle, why don't they have to have things vehicles have (rear view mirrors, training/testing requirements); what happens if a cyclist causes the accident
25	? Driver	Email	Query	If a cyclists moves out to get passed parked cars, do following vehicles either have to slow and wait (on narrow winding roads) or move into oncoming traffic	Yes	?	No	N/A		If a cyclist is on the footpath, should they give way to pedestrians or should pedestrians stand aside; Do ministers take note of suggestions/comments/complaints from bus drivers when you make rulings/judgements?

26	? Driver	Email	Query	but not about the non-reciprocal nature of the rule (concerned about cyclists not overtaking stationary vehicles with 1m)		?	No	N/A			Makes no reference to road rule, is entirely concerned by the lack of adherence to road rules by cyclists (particularly those that exit the bicycle path on Gailey Road, turning left into Sandford St at St Lucia)
27	Cyclist	Email	Query	Wishes to know what the legislation means when a cyclist is travelling straight on a multi-lane road, while a vehicle uses a left-turn lane and overtakes a bicycle on the left		Yes	No	N/A			
28	Pedestrian?	Fax?	Query	What happens when waiting at traffic light queue, and cyclists proceed through waiting traffic and position themselves at head of queue		?	No	N/A		Cyclists riding on footpaths endangering pedestrians; doesn't believe that cycling has health benefits (gears make it "easy" to ride, particularly uphill)	Feels they are impractical to implement; Concerned about head-on collisions resulting from "allowing" motorists to cross double white lines; Riders lack of adherence to the following rules: excessive speed, inadequate lighting, failure to signal, failure to take notice of traffic lights, lack of consideration of other users of roads and footpaths.
29	Unknown	Email	Query	Would like to know what guidelines in the regulations about the type of admissible evidence would be required to prosecute drivers		?	No	N/A			
30	Cyclist	Email	Yes		Yes	Yes	No	N/A		Would like to know the criteria for evaluating (success or otherwise) the rule, and the method by with those criteria will be assessed	

31	Driver	Email	Yes		Yes	?	No	Yes	Concern about cyclists on narrow, hilly/winding, local roads, where sight distance constraints make observing cyclists with enough warning to reduce speed difficult. Does not believe cyclists should be permitted on certain roads		
32	Unknown	Letter?	Yes		Yes	?	Yes	N/A		A vehicle overtaking a cyclist did not wait until safe to overtake, and moved into the path of oncoming vehicles risk a head-on collision	
33	Unknown	Email	No reference to the rule		No reference to the rule	N/A	N/A	N/A			Supports cyclist licensing and registration; cyclists should not be permitted on major roads; Concern about cyclists not adhering the following road rules: not keeping left, not signalling when turning, not obeying traffic lights and 'lane splitting'
34	Unknown	Letter?	Yes	Unaware of the provision that permits a vehicle to cross a centre line to overtake		No	No	N/A			Concerned about road designs; Cyclists riding more than 2 abreast/ in large groups; cyclists must pull over to allow vehicles to overtake safely

35	Group?	Email	Yes	Concerned that the practical implementation of the legislation is not provide for equal accountability, and places significant burden on driver to prove innocence		?	N/A	N/A				
36	Cyclist	Email	Yes		Yes	Yes	Yes	N/A		Anecdotally reports drivers taking more care around cyclists, and wishes the rule to continue after the trial period		
37	Driver	Email	Query	Cyclists deliberately choose to take more road space, making it impossible to pass		No	No	N/A			The rule delays traffic and causes congestion, which in turn causes anger and frustration	
38	? Driver	MP	Query	Wants to know how rule will be implemented on narrow, winding roads		?	No	N/A				Wants to know if some locations could be considered too dangerous to implement the rules (eg. Mt Nebo Rd), where it would be considered dangerous for cyclists; How cyclists are being policed on roads without a designated cycle lane; How can the community provide feedback; On single lane roads, would it be possible to legislate that cyclists remain single file
39	Cyclist	Email	Yes		Yes	Yes	Yes	N/A				Lack of cycle lane on Nicklin Way in the southbound direction from Wurley Dr; At intersections on Nicklin Way, traffic islands make it impossible for cyclists to travel in the shoulder,

								bridges are also narrow and create difficult situations
40	Both driver and cyclist	Email	Yes	Yes	No	No	N/A	Video footage will not be admissible as evidence; Bicycle riders do not pay registration , and roads are only there for the people that pay for them; Increase the hazards for motorists when vehicles swerve into the adjacent/opposing lane
40	Cyclist	Same author as 30						
42	Unknown	Contact the Lord Mayor	Yes		?	No	N/A	Concerned about cyclists riding on busy roads, causing traffic to slow and cars to frequently cross road markings to avoid hitting them, and would like legislation to prohibit cyclists from riding on roads where a dedicated path runs alongside it
43	CBD BUG (cycling advocacy group)	Letter?	Yes	Yes	Yes	Yes	N/A	Not sure that the associated MPD awareness campaign has been sufficient to influence behaviour (given earlier evidence that motorists do not know road rules as they apply to cyclists); Concern over the evaluation
44	Both driver and cyclist	Letter?	Does not mention rule	Does not mention rule	-	-	-	Concerned cyclists are not required to have identification/registration plates; Disturbed by riders behaviours (riding in large groups, riding 2 & 3 abreast, assertive/sometimes aggressive behaviour); Provides recommendations (registration plates, only permitted to ride single file in groups limited to between 3 and 6, require cyclists to dismount and walk bikes across pedestrian crossings

										at busy intersections and some roundabouts)
45	? Driver	Email	Yes		Yes	No	No	No	Believes drivers have interpreted the new rule to give them the right to cross the centre line without having the responsibility to do that safely	
46	Both driver and cyclist	Email	Does not mention rule			-	-	-		Concerned about anti-social behaviour/lack of adherence to road rules by cyclists; Feels that cyclist's already receive special privileges; Cyclists require road rule test, registration and 3rd party
47	Group?	Email	Yes	Wants clarification on whether you can be fined for crossing the double line when overtaking, and what happens if the officer has not observed a cyclist	Yes	N/A	N/A	N/A		Concerned that drivers now cross centre lines, regardless of whether it is safe to do so, and consider it normal whether there is a cyclist or not; Cyclists riding 4/5 abreast, not signalling, and lane-splitting; Should not permit parking near bicycle lanes; Should pay a small fee to maintain bicycle lanes; Cyclists should be allowed to use the footpath on roads with high traffic volumes
48	Cyclist	Email	Yes		Yes	Yes	Yes	No		Reports improved driver behaviour following introduction of rule (was overseas at the time the rule was introduced)
49	Removed due to "out of scope"									

50	Driver (truck?), does admit owning a bike & riding on roads	Letter?	Yes	Wants to know how to slow a loaded 10 tonne truck (or b double) to 10 km/h (estimated bicycle speed) in a 100 km/h zone without a escort vehicle	Yes	No	N/A	Yes	Concern about speed differentials on high speed roads, and lack of available space to provide 1.5m clearance		Positioning of bicycle lanes to the right of a left turn lane (given the travel path of a truck trailer)
51	Cyclist	Email	Yes		Yes	Yes	Yes	N/A			Notes improvement of driver attitudes (increased passing distances, and patience in locations where achieving the passing distance is not possible) in the Beaudesert area
52	Cyclist	Email	Query	Wants to know what happens when a cyclist encroaches on the 1m space, would the driver of the vehicle be deemed at fault	Yes	No	No	N/A			Dislikes the fact that cyclists (nowadays) do not ride single file and as close to the left as possible, and is annoyed(?) that cyclists riding 2 abreast requires the driver to change lanes to pass/miss the group and that cyclists do not use bicycle lanes; Believes cyclists should pay registration to use the full lane
53	Driver	Letter	Yes		Yes	No	No	N/A		Disliked having to wait behind a large group of bicycles to turn into a service station	
54	Driver	Email	Yes		Yes	?	Yes	N/A		Concerned that drivers are crossing into oncoming traffic to provide the required 1m distance	
55	Removed due to "out of scope"										
56	Removed due to "out of scope"										
57	?	Email	Does not mention rule		N/A	-	-	-			Concerned about the ability of cyclists to "dob in" motorists, and is concerned this will create an us and them situation

58	Driver	Email	Does not mention rule		N/A	-	-	-		If vehicles are forced to slow because of a cyclist, will cyclists be fined for impeding traffic; Will bicycles be subject to roadworthy inspections; Wants to know whether the road rules allow for a cyclist to be charged with obstructing traffic/what penalties exist for cyclists who do not comply with safety equipment requirements
59	Driver?	Email	Yes		Yes	No	No	N/A		Believes that requirement to provide a safe distance when passing a bicycle endangers motorists by forcing them to travel on the other side of the road (into oncoming traffic) or forces them to travel at the speed of a cyclist
60	Driver	Email	Query	If a cyclist is riding in the middle of the left lane on a multi-lane road, would the following traffic be forced to travel at the same speed as the cyclist or merge into the right lane to overtake; If so, are there any restrictions on cyclists riding on an arterial road when there is an off-road facility in the same location	Yes	?	N/A	N/A		
61	Driver	Email	Yes		Yes	?	N/A	N/A	Oncoming vehicle overtaking a bicycle crossed the centre line, resulting in an near-miss head-on collision	Does not believe cyclists should be permitted to travel on roads with posted speed limit >60 km/h, or if they choose to they should pay 3rd party insurance and registration

62	?	Email	Yes		Yes	?	Yes	N/A	Wants to know how successful the rule has been in protecting cyclists, as no motorist has been fined (but a number of cycling friends report receiving increased fines for speeding etc.)		Would like to know that total value of fines levied (speeding etc) on cyclists, and motorists passing too closely
63	"out of scope"										
64	Cyclist	Email	Query	Is concerned about the lowering of the penalty (3 demerit points and $330 fine, from $4400 fine and 8 demerit points)	Yes	Yes	N/A	N/A		Did not expect many people to be charged, but is concerned that the penalty for endangering cyclists is only the same as driving 20 km/h of the speed limit	
65	Driver	Email	Yes			?	N/A	N/A			Why are cyclists allowed to travel on sealed roads where there is a footpath/cycleway within 10m of the road; Why are cyclists allowed to road on the road when there is a road shoulder/footpath/ cycleway within 10m; Why are cyclists allowed to ride more than single file; Why are cyclists allowed to run through red lights; Why are cyclists allowed to stop in front of the white line at intersections; What will be the consequences if a head-on collision occurs when someone overtakes a cyclist (who is at fault, who sues who, whose insurance issues the pay out, to who); In the event of an offence being reported, is verbal statement

									enough (to prove guilt/innocence); Why are cyclists allowed on roads with speed limits 80 or greater; If they do not pay registration, why are they allowed on the road and how are they prosecuted for failing to stop (other violations); If a cyclist swerves towards a vehicle and there is a collision how does the driver mount a defence
66	Driver?	Phone	Yes	Believes the rule is wrong, dangerous and should not be implemented	?	No	N/A	N/A	To know if there was a rule that required drivers to keep hands on the steering wheel when stopped at traffic lights
67	Drivers?	Web contact form	Query	Wants to know if the rule applies no matter what the road width is		?	N/A	N/A	Issue has been discussed at work site meetings (OHS?)
68	Resident/ driver	MP	Does not mention rule			-	-	-	Concerned about the volume of cyclists in Chelmer, with large groups of 40-50 cyclists riding 2 abreast making it very difficult to overtake (was 5th driver in queue behind a bunch)
69	Resident/ driver	Unknown	Does not mention rule			-	-	-	Wants cyclists to pay registration/be identifiable

70	Unknown	Unknown	Query	Does the driver have to indicate and change lanes fully when passing; Is a cyclist required to keep to the left of a traffic lane or can they ride in the centre; Can a motorist pass with less than 1m clearance if the vehicle speeds are lower due to congestion (which also limits the change to change lanes to keep the required distances)		N/A	N/A	N/A		
71	Unknown	Unknown	Does not specifically mention the rule, does mention difficulties in crossing centre line due amount of oncoming traffic in local area			N/A	N/A	N/A		Why are cyclists permitted to ride 2 abreast (permitting 2 abreast with the rule will cause traffic delays to local traffic particularly on weekends); Cyclists are busy talking to each other and not paying attention to surroundings, surely this is distraction
72	Unknown	Unknown	Yes	Is happy to comply with 1.5m component of road, provided they ride single file; 2-abreast riding makes 1.6m clearance impossible	Yes	?	N/A	Yes		Concerned about cyclists riding 2-abreast or 3 abreast, particularly in adverse weather conditions

73	Unknown	Unknown	Does not mention rule			-	-	-	Enquires if it is legal for a cyclist to pass stationary traffic on the left, and at intersections that are hazardous to cyclists can they move to the front of stopped traffic to ensure they are visible when traffic starts moving
74	Unknown	Unknown	Query	Would like to know which legislation and sections(s) the new road rules relating to bike passing is in		N/A	N/A	N/A	
75	Unknown	Unknown	Yes	Insufficient space, when vehicles are parked in the street to give 1.5m (from text, cannot determine if residence is in 60km/h or >60km/h speed limit)		N/A	N/A	N/A	Would like to know why cyclists are not registered, or why they aren't tolled (at specific locations); Would like police officers to police not dismounting to cross roads, running of red lights at Lambert & Clarence Rd intersection
76	Unknown	Unknown	Query	What happens when waiting at traffic light queue, and cyclists proceed through waiting traffic and position themselves at head of queue- how is it fair?	Yes	N/A	N/A	N/A	Can cyclists be fined for not using a bicycle/shared path; Are there planes to add bike lanes to at least the main roads; Are there plans for identification of cyclists so they can be penalised for violations; Will bicycles be charged for lane splitting (I'm guessing passing on the left)

77	Unknown	Unknown	Query	If a cyclist is riding on a multi-lane road but positioned to right of a travel lane, does an overtaking driver still have to provide the minimum distance, even when the cyclists is travelling in their own lane	Yes	N/A	N/A	N/A			
78	Driver?	Web contact form	Query	Would like to know if rider positioning impacts on driver responsibilities		N/A	N/A	N/A		A cyclist is riding on the lane marking line despite there being a road shoulder, or is riding in a bicycle lane, and a driver is unable to provide 1 or 1.5m and they overtake and receive an infringement notice who is that fair? Shouldn't the cyclist be putting themselves in the safest position on the road	Also believes the it is unfair that cyclists are not registered and cannot be caught on camera, and it is harder to report a cyclist (to the police I'm guessing)
79	Unknown	Web contact form	Query	Cannot find the documentation relating to the new provisions allowing drivers to cross double centre lines to provide 1.5m when passing a cyclist		N/A	N/A	N/A			

80	Unknown	Web contact form	Query	Would like to know if the rule is reciprocal (cyclist overtaking a vehicle is required to provide 1m), and if not what responsibilities does the cyclist have when they are overtaking on the left during peak hour/congestion	N/A	N/A	N/A		
81	Unknown	Web contact form	Query	Would like to know if cyclists are permitted to lane-split/overtake on the left, when vehicles are stopped at traffic lights waiting to turn right. After the cyclist has moved to the front, and the traffic light changes, do vehicles have to wait for cyclists to turn then change lanes to overtake the cyclist	N/A	N/A	N/A		
82	Driver?	Email	Does not mention rule		N/A	N/A	N/A	Reports a group of cyclists travelling more than 2 abreast, occupying one travel lane (and not the bicycle lane), which caused a queue of vehicles	Bicycle riders should be required to ride in bicycle lanes; All bicycle riders should be required to be licenced; Bicycles should be registered/have 3rd party insurance; Should only be able to travel in single file

83	Driver?	Email	Query	Would like to know why cyclists are not required to ride single file, but can ride 2 abreast taking up a large amount of road space, making it difficult for drivers to provide 1.5m when overtaking	N/A	N/A	N/A		Would like clarification if cyclists are required to ride single file, or are entitled to ride 2 abreast and occupy a traffic lane	
84	Driver?	Website	Yes		Unknown, probably no	N/A	N/A			Cyclists should be prohibited from riding 2 abreast, as it causes a hazard for other road users (they are required to slow), particularly on single-lane roads
85	Driver	Email	Yes	Would like clarified: TMR advertising advises drivers that it is permissible to cross double centre lines when safe to do so, while other information says you are not allowed to cross centre white lines	N/A	N/A	N/A			
86	Cyclist?	Email	Not mentioned		N/A	N/A	N/A			Red light rules applying to cyclists at intersections on steep hills
87	Driver	Email	Yes		No	N/A	N/A			Cites a number of anecdotes where cyclist/s broke the rules; Cyclist road positioning, they are not keeping far enough left; Cyclists are taking up road space, and not paying registration

88	Driver	Email	Yes	Would like clarified: TMR advertising advises drivers that it is permissible to cross double centre lines when safe to do so, while other information says you are not allowed to cross centre white lines	N/A	N/A	N/A	
89	Driver	Email	Yes	Would like clarified: TMR advertising advises drivers that it is permissible to cross double centre lines when safe to do so, while other information says you are not allowed to cross centre white lines	N/A	N/A	N/A	
90	Cyclist	Email	Yes		Yes	Yes- most drivers a providing sufficient space, despite the fact that there are still some impatient/careless and aggressive drivers		
91	Driver	Email	Yes		No	N/A	N/A	Cyclists are now laughing at motorists, while riding 3 to 4 abreast

92	Driver (used to be a cyclist, but thinks roads are too dangerous now)	MP	Query	Should there be a head-on crash (vehicle overtaking a cyclist), who is at fault	Unknown, probably no	Kind of	Kind of			Cyclists not keeping to the left, and causing a hazard for vehicles
93	Driver?	MP	Yes	Would like clarified: TMR advertising advises drivers that it is permissible to cross double centre lines when safe to do so, while QPS says you are not allowed to cross centre white lines	Unknown, probably no	N/A	N/A		Believes the MPD rule is one-sided	Acknowledges the increase in cyclist penalties, but doubts many cyclists will have to pay the fine; Bicycles should be registered; Should be prohibited from riding 2 abreast; Must ride as close as possible to the left edge of road; Bicycles should only be allowed on footpaths which are specifically signed "shared use" paths; There should be no exemptions of the mandatory helmet use laws; Some bicycle lanes are too small to be of any practical use
94	Driver	Website	Probably		N/A	N/A	N/A			Does not want cyclists to be travelling on the roads near Samford/Petrie; cyclists should be licenced (they really mean registered/identifiable); Only on roads with speed limits >80 km/h in cycle lanes; Cyclists should be prohibited from riding 2 abreast; Believes all cyclists travelling out that way are only doing it on their days off work
95	Cyclist	MP	Yes		Yes	Yes- generally lateral clearance when overtaking cyclists has improved, but now instead of squeezing the cyclist they are	N/A			Drivers do not slow down to allow them to make the correct decision

						squeezing other vehicles (adjacent or oncoming traffic)			
96	Driver	Phone	Yes		N/A	N/A	N/A		Has experienced cyclists damaging his truck (broken mirrors, dents), and the fact that they "get away with it" because there is not means of identifying the cyclist
97	Driver	Website	Yes		No		Yes- however is unaware of provision for drivers to cross centre lines, believes the advertisement of the passing rule is incorrect because a semi overtaking a group riding 2-abreast would be required to cross a centre line and would be fined		Riding 2 abreast should be prohibited
98	Cyclist	Website	Yes		Yes	N/A	N/A		Recommends amendments to the rule: bicycle rides be prohibited from riding 2 abreast, and where possible on main roads that footpaths be designated shared paths where cyclists must ride
99	Cyclist/Driver	MP	Yes		Yes	Potentially	N/A	Believes the MPD rule is working as far as drivers are concerned, but is concerned that the introduction of this rule has led to cyclists believing that their safety is the responsibility of vehicle operators	Instances of road rule violations (running red lights, riding on the wrong side of the road, not wearing helmets, not using lights, riding on motorways, riding in packs and refusing to allow traffic to pass safely, u-turns over double white lines on blind corners)

100	Driver	MP	Yes	N/A	No	N/A	N/A		Does not agree with the section of the rule that allows motorists to cross unbroken centre lines to overtake, believes if the road was safe it wouldn't have an unbroken line	Disagrees with the fact that the rule applies to the cyclist on the right, when overtaking cyclists travelling 2 abreast- if it is safe to overtake cyclists travelling 2 abreast, why can a driver not overtake a slow moving vehicle
101	Driver	MP	Yes	N/A	N/A	Yes- requires traffic to travel slow and take great risks to overtake	N/A		Cyclists riding 2 abreast on busy, twisty roads; Drivers taking risks to overtake cyclists (nearly resulting in a head-on collision) between Dayboro and Ocean View	Ban bicycles from busy twisty roads, or prevent riding 2 abreast
102	Driver?	MP	Yes	N/A	No	N/A	Yes- believes there are times when vehicles cannot give the relevant clearance in accordance with the rule, and this results in drivers being victimised (case of the prosecution of truck driver)			Cyclist behaviour (not signalling), and they travel in large groups and travel too fast
103	Driver	MP	Yes	Yes	No	N/A	N/A			The fact that cyclists are not required to be registered (both issues of identification and 3rd party insurance), of minimum age, and pass a test, while vehicle drivers are and motorists are then required to cross onto the wrong side of the road to overtake. Would like to know how cyclists "get away with it all"

104	Cyclist?	MP	Yes	N/A	Yes	N/A	N/A	Yes- believes repealing the rule would result in increasing incidents of driver harassment of cyclists		Concerned that the rule would be repealed before the end of the 2 year trial, and believes this position is due to the "apparent unwillingness by the QPS to follow through on complaints by cyclists, so leaving no trail of investigation and prosecution"
1_2	Driver	MP	Yes	Yes	Yes	N/A	N/A		Passing event, on 80km/h road, where visibility was impinged (setting sun)	Cyclists riding on the road, and not adjacent shared path (in perfectly good order and condition)
2_2	Walker (on Bicentennial path) & Driver	Lord Mayor, and MP's	Yes	Yes	No	N/A	Yes- forced to wait behind slow-moving cyclists on windy, hilly streets because it is unsafe to pass on wrong side of road; up hills travel at <20 km/h, and they exceed 50 km/h on descents		Streets around UQ/St Lucia	Lack of regard for road rules by cyclists (including: failure to stop at stop sign/red light; failure to indicate when turning; failure to indicate on (when required) and off roundabouts; failure to have light visible from 200m; failure to have bell or horn fitted (and failure to use it!); ride the wrong way up divided roads; ride the wrong way up one way roads; ride across pedestrian crossings). Provides suggested locations for police patrols between 05:00 - 09:00 Tuesday to Sunday; Now cyclists get 1m on roads, should be prohibited from footpaths; Design issues on Bicentennial path
3_2	Driver	MP	Unknown	No	N/A	N/A	N/A		With regards to television ad 'Share the road': draws attention that the ad shows a driver crossing an unbroken centre line, then goes to cite that crossing an unbroken line is illegal (seemingly unaware of the rule changes that allows crossing a line, where safe, when passing a cyclist)	
4_2	Driver		Unknown	N/A	N/A	N/A	N/A			Motorists are blamed for accidents with cyclists, suggest keeping vehicle types apart by compelling

											cyclists to ride on cycle tracks; Cyclists should be forced to take a test, be licenced & register their bicycles (don't follow road rules)
5_2	Driver		Yes			N/A	N/A	N/A			Question about road rules, at a particular location with road works(?)
6_2	Driver	Premier, MP's	Yes	Potentially (makes primary reference to allowing cyclists to "ride in any lane they like", and then says they would run over one in a 110 zone)	Limited	No	N/A	N/A			Concerned about allowing cyclists to ride across crossing (what would happen if they drove), cyclists should be registered, and politicians are discriminated against motor-vehicles/cyclists
7_2	Driver	Local councillors, MP's									
8_2	Driver	MP	Debatable	made roads unsafe (with push bikes & trail bikes freeloaders)	limited	N/A	N/A	N/A		Insulted motorists and now pedestrian (taken road safety back 100 years)	
9_2	Driver	MP	Yes	And the road rule changes allowing cyclists not to ride in bike lanes		There was no mention of MPD acceptance, but does not accept rule allowing cyclists not to ride in bike lanes					Observed a cyclist riding through a red light; asks why money was spent on bike lanes (only installed because cyclists complained about behaviour of motorists, which prompted bike lanes to keep them safer)

10_2	Driver	No reference to MPD, although does mention "new cyclist road rules being released giving cyclist more freedom on the road, holy crap this is unbelievable on every level I am dumbfounded and horrified…"		Limited	No	N/A	N/A		N/A	Cyclists seem to expect motorist to look out for their safety (mentions cyclist using headphones - the fact that she wouldn't be able to hear anything coming, particularly since no rear view mirror affixed)	Cyclists not paying insurance/road tax; should be prohibited from road between Buchan's Point and Yule Point; rude cyclists refuse to dismount and let the line of traffic behind them pass
11_2	Driver	Yes	wants to know what if the rider is in the middle of the road and won't move to allow the motorist to pass		No	N/A	N/A				Not enforcing current rules (helmet use & bell specifically), and changing rules to allow cyclists to ride across ped crossings, ongoing issue of cyclists not registered/identifiable

12_2	Driver	Yes	Yes	No	Believes impractical	Difficult to comply because: 90% roadways too narrow and road shoulders not safe; too many narrow bridges/tight corners/vertical alignment (not all roads uniform, yet rule covers all); dips/ causeways limit visibility for motorists & truck drivers; crossing centre line unsafe; cyclists have no concept of road rules/ what is involved in the operation of car/heavy vehicle; cyclist behaviour (not following road rules, e.g. wrong way down road)				1m rule can impede operation of emergency vehicles (speed bumps bad enough); cars parked on both side of the road leaves no room for cyclists; when evasive action required cyclists can't accelerate like vehicle
13_2	Driver	Does not mention MPD rule, but mentions riding in cycling lanes, riding on footpaths		For rules mentioned, No	N/A	N/A				Cyclists not using paths provided for them; cyclists need to be registered (with number plate) & insured; police to start enforcing road rules

14_2	Cyclist and driver	Yes	Looking for clarification of rule - how does this rule apply if a cyclist isn't in a traffic but in a shoulder (& who is at fault if a cyclist exits a shoulder when a vehicle is passing); under new laws is it ok to ride on a highway (if so/not they why or why not) Does the MPD extend to being able to overtake another vehicle if going too slow (why or why not)					Notes cyclists prohibited on motorways, & would like to know why this does not apply around Brisbane on roads 80 km/h+ without shoulders; also notes the "unsafe" rule allowing buses to pull out into traffic (from bus stops?) Lack of provision for cyclist after road re-surfacing works 2 abreast riding should be prohibited
15_2	Truck driver	Yes		Yes	No	Concerned about motorists crossing centre line when overtaking a cyclist	N/A	
16_2	Driver	Query	Wants clarification on why the definition of "passing" a cyclist is different to the definition used for other vehicles when describing "passing and overtaking"?	Yes	N/A	N/A		

17_2	Driver	Yes		Generally understands, but believes drivers will be ticketed for crossing solid line when passing a cyclist	N/A	N/A	N/A			Thinks cyclists should be prohibited from riding on footpaths; enforcement of use of lights a night should occur
18_2	Probably a cyclists	Yes		Yes	Yes	N/A	N/A			Suggests MPD has had an impact, even if nothing more than a education campaign
19_2	Cyclist	Yes		N/A	Yes	N/A	N/A			Promotion of MPD probably more important than enforcement
20_2	Unknown	Yes		Yes	Yes		Difficult to comply when cyclists riding 2 abreast			
21_2	Writes from perspective of driver, but rides	Yes	And the provision to cross a centre line	Asks if driving along a narrow country road (with no shoulder) and suddenly there is a cyclist, and has to cross a double line to provide 1.5m, but there is a truck coming the other way, who should I kill?	No	N/A	Kind of - says difficult on country roads with no shoulders/crests/one lane bridge, tight bends, high speed limits		As per earlier	Narrow, high speed, roads - cycling clubs should be banned from using Yandina-Bli Bli Rd and cyclists should be warned it's not suitable for cyclists (only indulging their hobby/sport - would it be acceptable for a skateboard club, or rugby club to job 2 abreast)

										Allowing traffic to cross double lines is dangerous, and riding 2 abreast should be banned on roads with little or no shoulder (and reiterates desire to prohibit clubs from 'taking over' Bli Bli Yandina Rd
22_2	BUG (CBD)	Yes			Yes	Limited				Particularly concerned about the lack of enforcement by QPS (and attitudes of police when complaint is made); Identifies 3 incidents
23_2	Driver	Yes		Yes	?		Kind of - says difficult on country roads with no shoulders/crests/one lane bridge, tight bends, high speed limits			Believes cyclists riding 2 abreast are dangerous (and 2 abreast is not permitted), and the new rules apparently allow cyclists to ride in the middle of the road
24_2	Driver	Yes	would like clarification if centre line is the same as double lines	N/A	N/A	N/A	N/A			
25_2	Heavy vehicle driver	Probably			N/A			Motor vehicles overtaking, on wrong side of road, cyclists ascending Kuranda Range, and the hazard it presents to heavy vehicles descending (limited distance visibility on some corners); Wants to know when and how a road is deemed unsuitable for cyclists, if a 'not suitable for cyclists' sign could be erected, and vehicles instructed to not overtake cyclists on a segment		Believes Kuranda Range should be deemed unsuitable for cyclists (and bicycles prohibited); has no problems with cyclists descending as they travel faster than any motor vehicle
26_2	Driver	Yes	And understands the basic maths (width of bike, including if riding 2 abreast, and road space remaining)	Yes	No	N/A	N/A			Why cyclists receive preferential treatment (and have their own organisation, Bicycle Queensland, within Queensland Transport, to lobby the government when drivers do not); Only .75m required for safe passing, 2

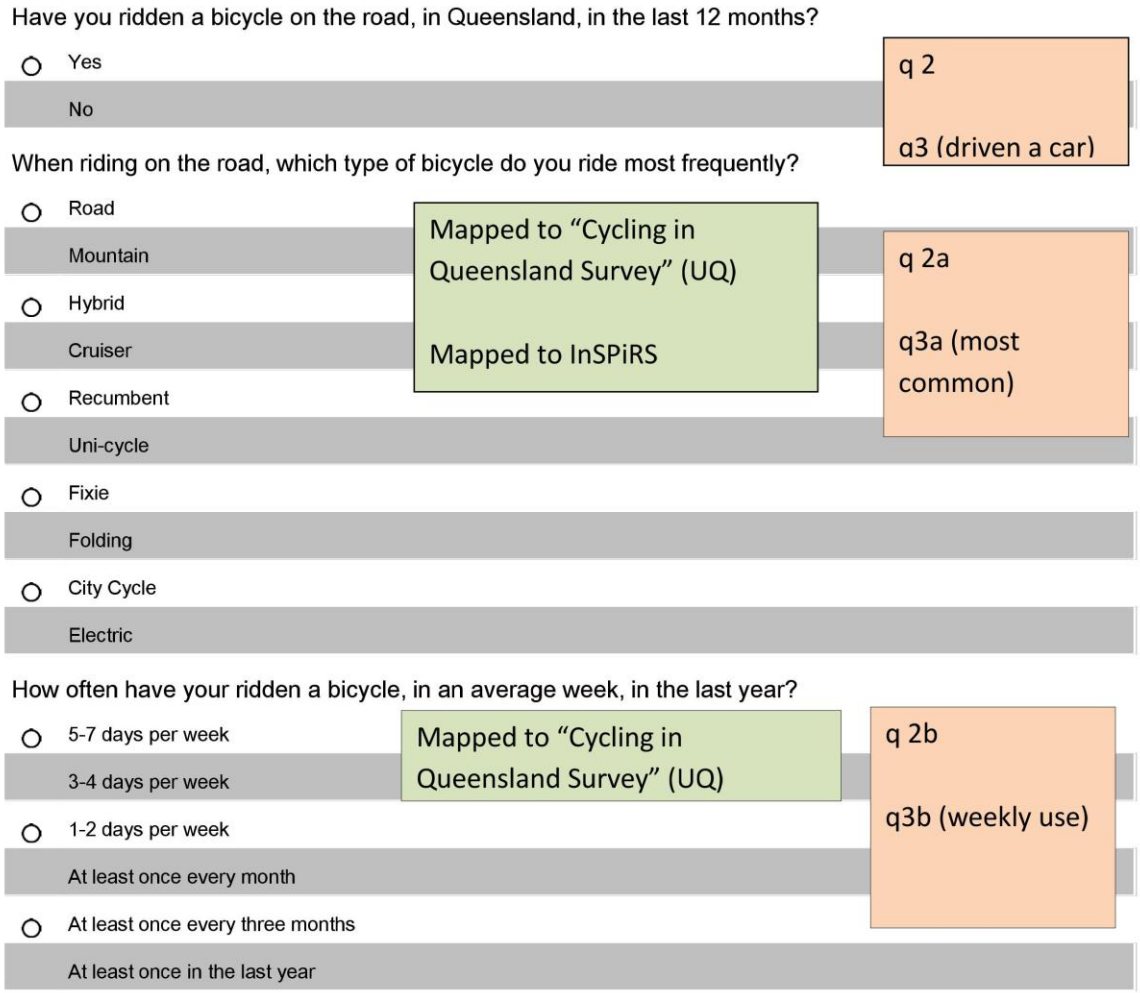
									abreast to be prohibited, pass a driving/riding test, have a registration plate, be fitted with 2 mirrors, and be compelled to use footpaths (except for busy shopping areas where it is not practical)
27_2	Driver	Yes	Yes	No				Narrow roads (and oncoming traffic), require drivers to travel at speed of cyclist for quite some distance	Suggests the new rules by themselves don't guarantee cyclist safety, riding 2 abreast should be illegal, riders should be required to ride in the left hand part of cycle lanes (and as far to the left as reasonable on road verges), cyclists should be identifiable like drivers, seems reasonable they make some contribution to road costs & pay a registration fee
28_2	Driver	Yes		?	N/A	N/A		The rule makes safety of cyclist the responsibility of other road users, cyclists should also be responsible	riding 2 abreast should be prohibited, cyclists must use cycle lanes when provided, there should be a limit to size of cycling groups (& if 20-30 bikes, they should be required to have a permit & safety car), no access areas for cyclists (cyclists should be prohibited from roads such as Mt Nebo/Glorious on the weekend), standard (& use) of bicycle lighting
29_2	Driver	Not mentioned	Not mentioned	N/A	N/A	N/A	N/A	N/A	Looking for clarification on road rules for cyclists (regarding positioning, and how it works on single- and multi- lane roads, and turning right)
30_2	Cyclist	Yes	Yes	Yes	Believes little compliance by drivers (particularly in high speed areas)	N/A	Little motorists compliance		Concerned by the messaging suggesting cyclists ride to the far left (thus encouraging cars to overtake when not safe to do so) puts cyclists at risk; read reports about the number of cyclists fined for not being as far left as possible (courier mail article)
31_2	Possibly cyclist	Yes		Yes		N/A		Controversy around enforcement (and need for proof/legal evidence for prosecution)	Provides USA examples of how enforcement may be improved

32_2	Driver (buses, motorcycles, limousines, cars, and previously pushbikes)	Yes	Kind of	No	N/A	Difficult (given cyclists are not cooperative)		Cyclists riding 2 abreast on a main road in peak-hour traffic, where cyclists were riding 2 abreast (additional comments regarding bicycles & attire), riding 2 abreast & obstructing the lane - the difficulty overtaking, and concern the cyclists wouldn't stay in "their" lane	Responsibility for collision avoidance must be mutual, should be prohibited from riding 2 abreast (unless in races), cyclists need to concentrate on the traffic around them, should have to fit rear view mirrors, should be identifiable & over 21 should pay registration to cover roads (because bicyclists cannot ride in a 'sensible, law abiding, courteous and disciplined fashion)

APPENDIX 2 QUESTIONNAIRE WITH MAPPING TO EARLIER SURVEYS

The pdf version of the online survey on the following pages includes the question numbers from the cyclist version of the survey (orange boxes) and the questions matched from previous survey items (green boxes). The driver survey follows the cyclist version.

- 'Cycling in Queensland Survey' refers to a survey distributed to Bicycle Queensland members in 2009 for the Cycling in Queensland Study (funded by a NHMRC project: Understanding and influencing physical activity to improve population health ID#301200)
- 'InSPiRS' refers to semi-regular survey panel administered by CARRS-Q
- 'Amy Gillett' refers to a survey conducted by research strategy group Crosby Textor on behalf of Amy Gillett Foundation in October 2014
- 'TMR RSPAT' refers to a panel survey regularly conducted by a panel research company on behalf of TMR
- 'Queensland Cycle Survey' refers to a survey distributed to those who rode a bicycle in Queensland in 2009 for the Queensland Health Trauma Research Grant.


Have you ridden a bicycle on the road, in Queensland, in the last 12 months?
Yes
No
q 2
q3 (driven a car)
When riding on the road, which type of bicycle do you ride most frequently?
Road
Mountain
Hybrid
Cruiser
Recumbent
Uni-cycle
Fixie
Folding
City Cycle
Electric
Mapped to "Cycling in Queensland Survey" (UQ)
Mapped to InSPiRS
q 2a
q3a (most common)
How often have your ridden a bicycle, in an average week, in the last year?
5-7 days per week
3-4 days per week
1-2 days per week
At least once every month
At least once every three months
At least once in the last year
Mapped to "Cycling in Queensland Survey" (UQ)
q 2b
q3b (weekly use)

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How long have you been riding a bicycle? (don't count riding as a child or teenager if you had a voluntary break from cycling of a year or more)

- ○ less than 2 years
- between 2 and 5 years
- ○ between 5 and 10 years
- 10 years or more

Mapped to "Cycling in Queensland Survey" (UQ)

q6

q6a1 (drivers licence)

What is the time (in hours) you spend riding in an average week?

.....

Mapped to "Cycling in Queensland Survey" (UQ)/ "Queensland Cycle Survey" (QUT)

q7

q7a1 (car hrs)

What is the distance (in kilometres) you ride in an average week?

.....

Mapped to "Cycling in Queensland Survey" (UQ)/ "Queensland Cycle Survey" (QUT)

q8

q8a1 (car km)

When riding on the road, how often did you ride on roads with a posted speed limit of:

	Never	Sometimes	Mostly
40-60 km/h			
70-80 km/h			
90-110 km/h	☐	☐	

Mapped to "Queensland Cycle Survey" (QUT)

q9a1
q9a2
q9a3

When you are riding on roads with a speed limit of 60 km/h or less, how often do overtaking drivers leave you less than 1 metre of clearance?

q10

- ○ Almost never
- Rarely
- ○ Sometimes
- Most of the time
- ○ Almost always

When you are riding on roads with a speed limit greater than 60 km/h, how often do overtaking drivers leave you less than 1.5 metres of clearance?

q11

- ○ Almost never
- Rarely
- ○ Sometimes
- Most of the time
- ○ Almost always

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When you're riding, have you noticed a change in the space drivers give you when they are overtaking?

- ○ Yes, a lot more space
- Yes, a little bit more space
- ○ No, about the same
- No, a lot less space

Mapped to Amy Gillett

q12

Below are a series of statements about bicycle riders. For each, please tell us to what extent you agree or disagree

Matrix: part 1 of 2

	Strongly disagree	Disagree	Neither Agree nor Disagree	Agree
Compared to 12 months ago I have observed fewer incidences of road rage between motorists and bicycle riders	☐	☐		
My empathy for bicycle riders has increased in the last 12 months	☐			
Compared to 12 months ago I have observed motorists giving bicycle riders more room when overtaking	☐	☐		
Compared to 12 months ago I have observed more bicycle riders on the road	☐	☐	☐	☐
Compared to 12 months ago I am more aware of bicycle riders when driving on the road	☐	☐	☐	☐

Mapped to Amy Gillett

q13a1
q13a2
q13a3
q13a4
q13a5

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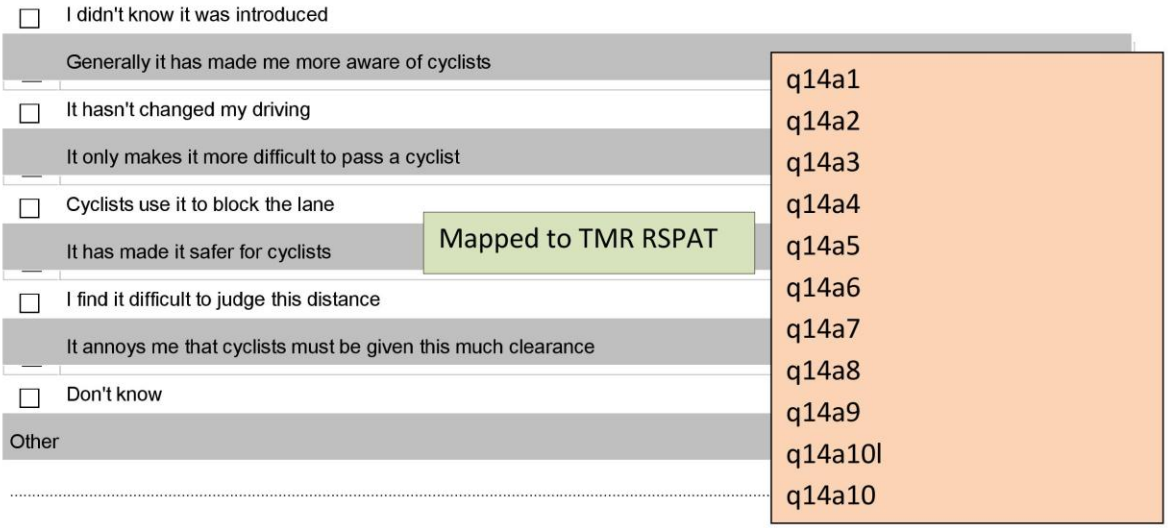
A 'minimum overtaking distance' rule has been introduced in Queensland. Motor vehicles must leave a minimum 1 metre clearance between their vehicle and a cyclist when overtaking a cyclist on roads with a speed limit of 60 km/h or less, or 1.5 metres clearance on roads with a speed limit over 60km/h. What do you think of this rule? (tick all that apply)



Which of the following road rules applies in Queensland?

	Yes	No	I don't know
Bicycle riders must ride within marked bicycle lanes	☐	☐	☐
Bicycle and motorcycle riders are permitted to ride two abreast	☐	☐	☐
Cyclists are permitted to overtake on the left of motor vehicles when the left hand indicator is not on	☐	☐	☐
It is illegal to park in a bicycle lane	☐	☐	☐
It is legal, when safety to do so, to cross a continuous line to allow at least 1 metre clearance to pass a cyclist in speed zones of 60 km/h or less	☐	☐	☐
Cyclists in Queensland can cycle on footpaths unless otherwise signed	☐	☐	☐
Cyclists can treat stop signs as give way signs where it is safe to do so	☐	☐	☐
Cyclists can ride across pedestrian crossings, provided they come to a complete before crossing	☐	☐	☐
Drivers must give way to cyclists	☐	☐	☐
Cyclists must give way to any vehicle leaving a roundabout	☐	☐	☐

Mapped to TMR RSPAT, for:
a4, a5, a6, a9, a10

q15a1
q15a2
q15a3
q15a4
q15a5
q15a6
q15a7
q15a8
q15a9
q15a10

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Please rate how certain or uncertain you are for the following:

Matrix: part 1 of 2

	Very uncertain	Uncertain	Neither Certain or Uncertain	Certain
I can judge if an overtaking car is at least 1 metre away	☐	☐		
Drivers can judge that they have left at least 1 metre clearance when overtaking a bicycle rider.	☐	☐		
Police can judge that a driver has left at least 1 metre clearance when overtaking a bicycle rider.	☐	☐		
I can judge if an overtaking car is at least 1.5 metres away when riding.	☐	☐		
Drivers can judge that they have left at least 1.5 metres clearance when overtaking a bicycle rider.	☐	☐		
Police can judge that a driver has left at least 1.5 metres clearance when overtaking a bicycle rider.	☐	☐		

bicycle riders: q16a1
I can judge: q16a2
other drivers can: q16a3
police: q16a4

bicycle riders: q16a5
I can judge: q16a6
other drivers can: q16a7
police: q16a8

How easy do you think it is for drivers to comply with the minimum passing distance rule in the following situations? Fourteen situations are presented. Please read the descriptions carefully as there are slight variations between the scenarios. For all situations, please imagine you are travelling on a straight, flat road with good sight distance.

Matrix: part 1 of 2

	Very Hard	Hard	Neither Easy or Hard	
Situation 1: You are riding on a multi-lane road with a 60 km/h speed limit. The road has a broken centre line and broken lane lines. There is no bicycle lane. You are riding in the left hand lane and a vehicle approaches from behind who is also travelling in the left hand lane.There is no traffic in the right hand lane.	☐	☐	☐	☐

q17

How easy do you think it is for drivers to comply with the minimum passing distance rule in the following situations? Fourteen situations are presented. Please read the descriptions carefully as there are slight variations between the scenarios. For all situations, please imagine you are travelling on a straight, flat road with good sight distance.

Matrix: part 2 of 2

	Very Easy
Situation 1: You are riding on a multi-lane road with a 60 km/h speed limit. The road has a broken centre line and broken lane lines. There is no bicycle lane. You are riding in the left hand lane and a vehicle approaches from behind who is also travelling in the left hand lane.There is no traffic in the right hand lane.	☐

Matrix: part 1 of 2

	Very Hard	Hard	Neither Easy or Hard	q18
Situation 2: You are riding on a road with a single traffic lane in each direction and a 60km/h speed limit. The road has a broken centre line. There is no bicycle lane. You are riding in the traffic lane and a vehicle approaches from behind travelling in the same direction as you. There is no oncoming traffic.	☐	☐	☐	☐

Matrix: part 2 of 2

	Very Easy
Situation 2: You are riding on a road with a single traffic lane in each direction and a 60km/h speed limit. The road has a broken centre line. There is no bicycle lane. You are riding in the traffic lane and a vehicle approaches from behind travelling in the same direction as you. There is no oncoming traffic.	☐

Matrix: part 1 of 2

	Very Hard	Hard	Neither Easy or Hard	q19
Situation 3: You are riding on a multi-lane road with a 60 km/h speed limit. The road has a broken centre line and broken lane markings. There is no bicycle lane. You are riding in the left hand lane and a vehicle approaches from behind also travelling in the left hand lane. There are multiple vehicles already travelling in the right hand lane.	☐	☐	☐	☐

Matrix: part 2 of 2

	Very Easy
Situation 3: You are riding on a multi-lane road with a 60 km/h speed limit. The road has a broken centre line and broken lane markings. There is no bicycle lane. You are riding in the left hand lane and a vehicle approaches from behind also travelling in the left hand lane. There are multiple vehicles already travelling in the right hand lane.	☐

Matrix: part 1 of 2

	Very Hard	Hard	Neither Easy or Hard	q20
Situation 4: You are riding on a road with a single traffic lane in each direction and a 60km/h speed limit. The road has an unbroken centre line. There is no bicycle lane. You are riding in the traffic lane and a vehicle approaches from behind travelling in the same direction as you. There is no oncoming traffic.	☐	☐	☐	☐

Matrix: part 2 of 2

	Very Easy
Situation 4: You are riding on a road with a single traffic lane in each direction and a 60km/h speed limit. The road has an unbroken centre line. There is no bicycle lane. You are riding in the traffic lane and a vehicle approaches from behind travelling in the same direction as you. There is no oncoming traffic.	☐

Please rate how hard or easy you would find it to comply with the minimum passing distance rule in Situation 5.

Matrix: part 1 of 2

	Very Hard	Hard	Neither Easy or Hard	q21
Situation 5: You are riding on a road with a single traffic lane in each direction and a 60km/h speed limit. The road has an unbroken centre line. There is no bicycle lane. You are riding in the traffic lane and a vehicle approaches from behind travelling in the same direction as you. There are multiple vehicles driving towards you in the oncoming traffic lane.	☐	☐	☐	☐

Please rate how hard or easy you would find it to comply with the minimum passing distance rule in Situation 5.

Matrix: part 2 of 2

	Very Easy
Situation 5: You are riding on a road with a single traffic lane in each direction and a 60km/h speed limit. The road has an unbroken centre line. There is no bicycle lane. You are riding in the traffic lane and a vehicle approaches from behind travelling in the same direction as you. There are multiple vehicles driving towards you in the oncoming traffic lane.	☐

Matrix: part 1 of 2

	Very Hard	Hard	Neither Easy or Hard	q22
Situation 6: You are riding on a road with a single traffic lane in each direction and a 60 km/h speed limit. The road has an unbroken centre line. There is a marked bicycle lane. You are riding in the bicycle lane and a vehicle approaches from behind travelling in the same direction as you. There is no oncoming traffic.	☐	☐	☐	☐

Matrix: part 2 of 2

	Very Easy
Situation 6: You are riding on a road with a single traffic lane in each direction and a 60 km/h speed limit. The road has an unbroken centre line. There is a marked bicycle lane. You are riding in the bicycle lane and a vehicle approaches from behind travelling in the same direction as you. There is no oncoming traffic.	☐

Matrix: part 1 of 2

	Very Hard	Hard	Neither Easy or Hard	q23
Situation 7: You are riding on a road with a single traffic lane in each direction and a 60km/h speed limit. The road has a broken centre line. There is no bicycle lane. You are riding in a group of 10 bicycle riders riding 2 abreast in the traffic lane and a vehicle approaches from behind travelling in the same direction as you. There is no oncoming traffic.	☐	☐	☐	☐

Matrix: part 2 of 2

	Very Easy
Situation 7: You are riding on a road with a single traffic lane in each direction and a 60km/h speed limit. The road has a broken centre line. There is no bicycle lane. You are riding in a group of 10 bicycle riders riding 2 abreast in the traffic lane and a vehicle approaches from behind travelling in the same direction as you. There is no oncoming traffic.	☐

Matrix: part 1 of 2

	Very Hard	Hard	Neither Easy or Hard	q24	
Situation 8: You are riding on a road with a single traffic lane in each direction and a 60 km/h speed limit. The road has a broken centre line. There is no bicycle lane. You are riding with another cyclist riding 2 abreast in the traffic lane and a vehicle approaches from behind travelling in the same direction as you. There is no oncoming traffic.	☐	☐	☐		☐

Matrix: part 2 of 2

	Very Easy
Situation 8: You are riding on a road with a single traffic lane in each direction and a 60 km/h speed limit. The road has a broken centre line. There is no bicycle lane. You are riding with another cyclist riding 2 abreast in the traffic lane and a vehicle approaches from behind travelling in the same direction as you. There is no oncoming traffic.	☐

Matrix: part 1 of 2

	Very Hard	Hard	Neither Easy or Hard	q25	
Situation 9: You are riding on a multi-lane road with a speed limit of 80 km/h. The road has a broken centre line and broken lane markings. There is no bicycle lane. You are riding in the left hand lane and a vehicle approaches from behind who is also travelling in the left hand lane. There is no traffic in the right hand lane.	☐	☐	☐		☐

Matrix: part 2 of 2

	Very Easy
Situation 9: You are riding on a multi-lane road with a speed limit of 80 km/h. The road has a broken centre line and broken lane markings. There is no bicycle lane. You are riding in the left hand lane and a vehicle approaches from behind who is also travelling in the left hand lane. There is no traffic in the right hand lane.	☐

Matrix: part 1 of 2

	Very Hard	Hard	Neither Easy or Hard	q26	
Situation 10: You are riding on a road with a single traffic lane in each direction and a speed limit of 80 km/h. The road has a broken centre line. There is no bicycle lane, but there is a wide road shoulder. You are riding in the wide shoulder and a vehicle approaches from behind travelling in the same direction as you cycling within the wide shoulder. There is no oncoming traffic.	☐	☐	☐		☐

Matrix: part 2 of 2

	Very Easy
Situation 10: You are riding on a road with a single traffic lane in each direction and a speed limit of 80 km/h. The road has a broken centre line. There is no bicycle lane, but there is a wide road shoulder. You are riding in the wide shoulder and a vehicle approaches from behind travelling in the same direction as you cycling within the wide shoulder. There is no oncoming traffic.	☐

Matrix: part 1 of 2

	Very Hard	Hard	Neither Easy or Hard	q27	
Situation **11**: You are riding on a multi-lane road with a speed limit of 80 km/h. The road has a broken centre line and broken lane markings. There is no bicycle lane. You are riding in the left hand lane and a vehicle approaches travelling in the left hand lane. There are multiple vehicles already travelling in the adjacent traffic lane.	☐	☐	☐		☐

Matrix: part 2 of 2

	Very Easy
Situation 11: You are riding on a multi-lane road with a speed limit of 80 km/h. The road has a broken centre line and broken lane markings. There is no bicycle lane. You are riding in the left hand lane and a vehicle approaches travelling in the left hand lane. There are multiple vehicles already travelling in the adjacent traffic lane.	☐

Matrix: part 1 of 2

	Very Hard	Hard	Neither Easy or Hard	Easy
Situation **12:** You are riding on a road with a single traffic lane in each direction and a speed limit of 80 km/h. The road has a broken centre line. There is no bicycle lane. You are riding in the traffic lane and a vehicle approaches from behind travelling in the same direction as	☐	☐	☐	☐

q28

Matrix: part 2 of 2

	Very Easy
Situation 12: You are riding on a road with a single traffic lane in each direction and a speed limit of 80 km/h. The road has a broken centre line. There is no bicycle lane. You are riding in the traffic lane and a vehicle approaches from behind travelling in the same direction as you. There is no oncoming traffic.	☐

Matrix: part 1 of 2

	Very Hard	Hard	Neither Easy or Hard	
Situation **13:** You are riding on a road with a single traffic lane in each direction with a speed limit of 80 km/h. The road has unbroken double white centre lines. There is no bicycle lane. You are riding in the traffic lane and a vehicle approaches from behind travelling in the same direction as you. There is no	☐	☐	☐	☐

q29

Matrix: part 2 of 2

	Very Easy
Situation 13: You are riding on a road with a single traffic lane in each direction with a speed limit of 80 km/h. The road has unbroken double white centre lines. There is no bicycle lane. You are riding in the traffic lane and a vehicle approaches from behind travelling in the same direction as you. There is no oncoming traffic.	☐

Matrix: part 1 of 2

	Very Hard	Hard	Neither Easy or Hard	
Situation 14: You are riding on a road with a single traffic lane in each direction and a speed limit of 80 km/h. The road has an unbroken centre line. There is a bicycle lane. You are riding in the bicycle lane and a vehicle approaches from behind travelling in the same direction as you. There are multiple vehicles driving towards you in the oncoming traffic lane.	☐	☐	☐	☐

q30

Matrix: part 2 of 2

	Very Easy
Situation 14: You are riding on a road with a single traffic lane in each direction and a speed limit of 80 km/h. The road has an unbroken centre line. There is a bicycle lane. You are riding in the bicycle lane and a vehicle approaches from behind travelling in the same direction as you. There are multiple vehicles driving towards you in the oncoming traffic lane.	☐

Please describe any other situations where you think it is difficult for drivers to comply with the minimum passing distance road rule?

.....

.....

.....

.....

q31a1

To what extent do you agree/disagree with the law that requires motorists to stay a minimum distance of 1 metre away when passing a cyclists on roads with speed limits of 60 km/h or less and 1.5 metres when travelling on roads with speed limits of greater than 60 km/h?

- ○ Strongly Agree
- Agree
- ○ I don't know
- Disagree
- ○ Strongly Disagree

Mapped to Amy Gillett

q32

Do you think that the police are enforcing the minimum passing distance road rule?

- ○ Yes
- No
- ○ I don't know

q33

How much do you think the police are enforcing the following violations?

Matrix: part 1 of 2

	Not at	Not much	Somewhat	Almost	Almost
Bicycle riders not wearing helmets	☐	☐	☐	☐	☐
Car occupants not wearing seatbelts	☐	☐	☐	☐	
Riding a bicycle through red lights	☐	☐	☐	☐	
Driving through red lights	☐	☐	☐	☐	
Riding a bicycle while under the influence of alcohol	☐	☐	☐	☐	
Driving while under the influence of alcohol	☐	☐	☐	☐	
Drivers passing cyclists closer than the Minimum Passing Distance road rule states	☐	☐	☐	☐	

q34a1
q34a2
q34a3
q34a4
q34a5
q34a6
q34a7

To what extent do you feel that the minimum passing distance road rule has improved bicycle rider safety

- ○ It has made cycling on the road much less safe
- It has made cycling on the road a little less safe
- ○ It has made no difference to cycling safety on t
- It has made cycling on the road a little safer
- ○ It has made cycling on the road much safer

Mapped to Amy Gillett

q35

When cycling on the road, have you experienced intentional harassment from motorists (or passengers) in the last 12 months?

- ○ Yes
- No

Mapped to "Cycling in Queensland Survey" (UQ)

q54

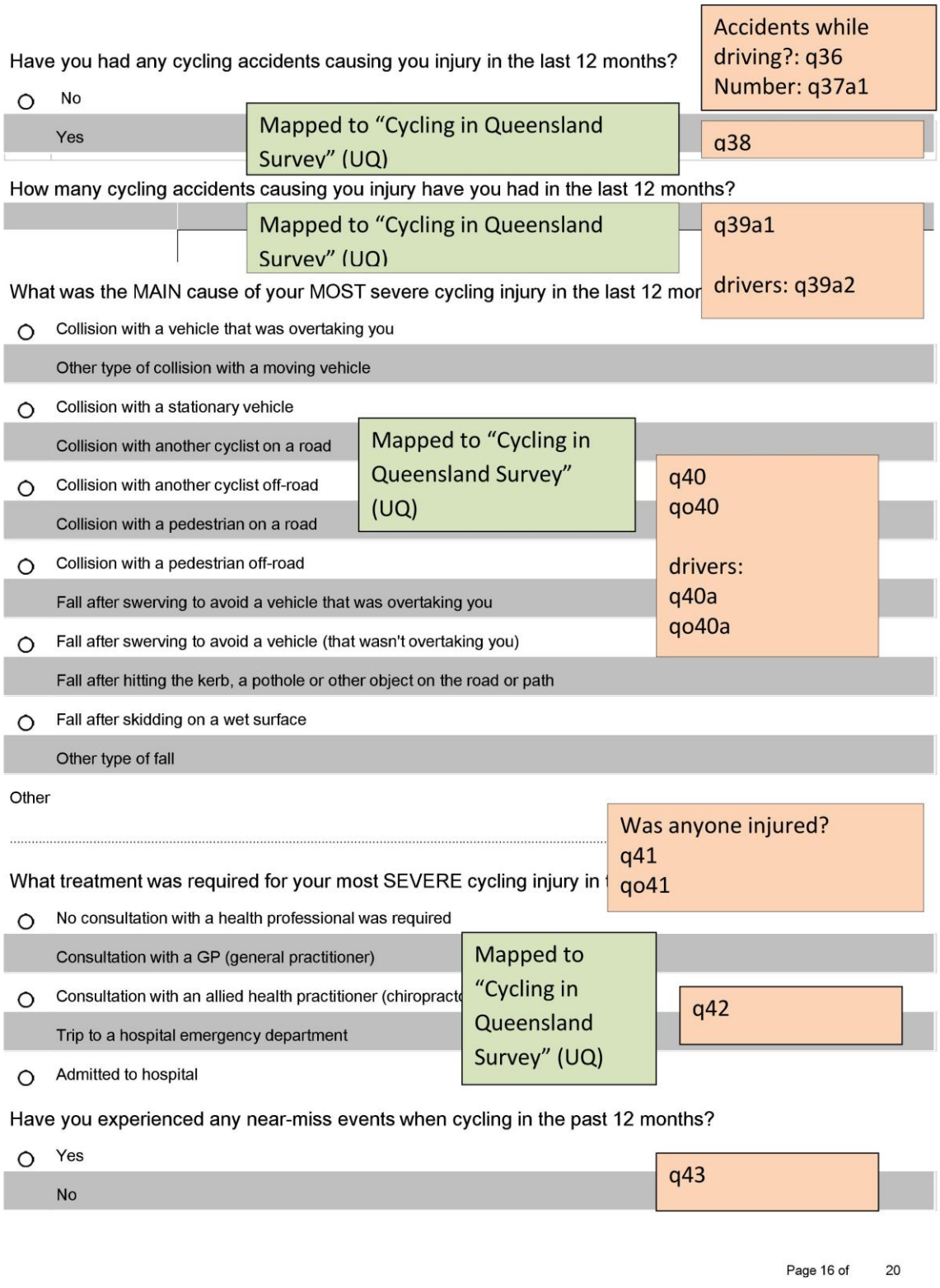
Please indicate which forms of harassment from motorists (or passengers) you have experienced in the last 12 months:

- ☐ Deliberately driving too close (causing fear/anxiety)
- Throwing objects
- ☐ Tailgating
- Deliberately blocking your path
- ☐ Shouting abuse
- Making obscene gestures
- ☐ Sexual harassment
- ○

Mapped to "Cycling in Queensland Survey" (UQ)

q55a1
q55a2
q55a3
q55a4
q54a5
q54a6
q54a7

- ☐
- ☐
- ☐


Have you had any cycling accidents causing you injury in the last 12 months?
No
Yes
Accidents while driving?: q36
Number: q37a1
Mapped to "Cycling in Queensland Survey" (UQ)
q38
How many cycling accidents causing you injury have you had in the last 12 months?
Mapped to "Cycling in Queensland Survey" (UQ)
q39a1
drivers: q39a2
What was the MAIN cause of your MOST severe cycling injury in the last 12 mor
Collision with a vehicle that was overtaking you
Other type of collision with a moving vehicle
Collision with a stationary vehicle
Collision with another cyclist on a road
Collision with another cyclist off-road
Collision with a pedestrian on a road
Collision with a pedestrian off-road
Fall after swerving to avoid a vehicle that was overtaking you
Fall after swerving to avoid a vehicle (that wasn't overtaking you)
Fall after hitting the kerb, a pothole or other object on the road or path
Fall after skidding on a wet surface
Other type of fall
Mapped to "Cycling in Queensland Survey" (UQ)
q40
qo40
drivers:
q40a
qo40a
Other
Was anyone injured?
q41
qo41
What treatment was required for your most SEVERE cycling injury in
No consultation with a health professional was required
Consultation with a GP (general practitioner)
Consultation with an allied health practitioner (chiropract
Trip to a hospital emergency department
Admitted to hospital
Mapped to "Cycling in Queensland Survey" (UQ)
q42
Have you experienced any near-miss events when cycling in the past 12 months?
Yes
No
q43
Page 16 of 20

Have you had any near-miss events that relate to the following situations?

- ☐ Near-miss with a vehicle that was overtaking you — q43a1
- Other type of near-miss with a moving vehicle — q43a2
- ☐ Near-miss after hitting the kerb, a pothole or other object on the road or path — q43a3
- Near-miss after skidding on a wet or uneven surface — q43a4
- ☐ Near-miss when swerving to avoid a vehicle (that wasn't overtaking you) — q43a5
- Near-miss with a pedestrian on a road — q43a6
- ☐ Near-miss with another cyclist off-road — q43a7
- Near-miss with another cyclist on a road — q43a8
- ☐ Near-miss with a stationary vehicle — q43a9
- Near-miss when swerving to avoid a vehicle that was overtaking you — q43a10
- ☐ Near-miss with a pedestrian off-road — q43a11
- Almost falling off — q43a12
- Other ..... — q43a13l

q43a13

driver ones
q43b1
q43b2
q43b3
q43b4
q43b5l
q43b5

Demographics You are near the end of the survey. Your answers to the next few questio hey will tell us alittle about who cycles. These questions are quite easy and quick.

Please indicate your gender

- ○ Male
- Female

Mapped to "Cycling in Queensland Survey" (UQ)

q45

What was the year of your birth? .....

Mapped to "Cycling in Queensland Survey" (UQ)

q46a1

What is the postcode of your primary residence? .....

Mapped to "Cycling in Queensland Survey" (UQ)

q47a1

What is the highest educational qualification you have completed? (Please only se

q48

- ○ No formal education
- Year 10
- ○ High school or senior certificate
- Trade qualifications or certificate/diploma
- ○ University degree
- Postgraduate degree (e.g. Grad Dip, Masters, PhD)

Mapped to "Cycling in Queensland Survey" (UQ)

Have you driven a motor vehicle on the road, in Queensland, in the past 12 month

q3

- ○ Yes
- No

When driving on the road, which type of vehicle do you drive most frequently?

- ○ Car (including sedan, hatchback, wagon/people mover, ute, or 4WD)
- Motorcycle, motor scooter or moped
- ○ Van/light commercial vehicle
- Truck
- ○ Bus

q3a

Mapped to InSPiRS

Are you a member of any of the following? (tick all that apply)

- ☐ Bicycle Queensland (BQ)
- Royal Automobile Club Queensland (RACQ)
- ☐ Cycling Queensland (CQ)
- Triathlon Queensland (TQ)

q49a1
q49a2
q49a3
q49a4

Thank you for participating in the survey. Please indicate if you would be interested in entering the random draw for one of five $200 Coles Myer vouchers, and click submit.

q53

- ○ Yes
- No

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Have you driven a motor vehicle on the road, in Queensland, in the past 12 months?

- ○ Yes
- ○ No

Thank you for your interest in the survey. Unfortunately we are looking for people who have driven on the road, and so have experienced the current traffic environment in Queensland.

When driving on the road, which type of vehicle do you drive most frequently?

- ○ Car (including sedan, hatchback, wagon/people mover, ute, or 4WD)
- ○ Motorcycle, motor scooter or moped
- ○ Van/light commercial vehicle
- ○ Truck
- ○ Bus

How often have your driven a vehicle, in an average week, in the last year?

- ○ 5-7 days per week
- ○ 3-4 days per week
- ○ 1-2 days per week
- ○ At least once every month
- ○ At least once every three months
- ○ At least once in the last year

How many years have you had your drivers licence?

.....

What is the time (in hours) you spend driving in an average week?

.....

What is the distance (in kilometres) you drive in an average week?

.....

How often do you drive on roads with a posted speed limit of:

	Never	Sometimes	Mostly
40-60 km/h	☐	☐	☐
70-80 km/h	☐	☐	☐
90-110 km/h	☐	☐	☐

When you overtake a bicycle rider on a road with a speed limit of 60 km/h or less, how often do you leave less than 1 metre of clearance?

- ○ Almost never
- ○ Rarely
- ○ Sometimes
- ○ Most of the time
- ○ Almost always

When you overtake a bicycle rider on a road with a speed limit greater than 60 km/h, how often do you leave less than 1.5 metres of clearance?

- ○ Almost never
- ○ Rarely
- ○ Sometimes
- ○ Most of the time
- ○ Almost always

When you're driving, have you noticed a change in the space drivers leave bicycle riders when they are overtaking?

- ○ Yes, a lot more space
- ○ Yes, a little bit more space
- ○ No, about the same
- ○ No, a lot less space

Below are a series of statements about bicycle riders. For each, please tell us to what extent you agree or disagree

Matrix: part 1 of 2

	Strongly disagree	Disagree	Neither Agree nor Disagree	Agree
Compared to 12 months ago I have observed fewer incidences of road rage between motorists and bicycle riders	☐	☐	☐	☐
My empathy for bicycle riders has increased in the last 12 months	☐	☐	☐	☐
Compared to 12 months ago I have observed motorists giving bicycle riders more room when overtaking	☐	☐	☐	☐
Compared to 12 months ago I have observed more bicycle riders on the road	☐	☐	☐	☐
Compared to 12 months ago I am more aware of bicycle riders when driving on the road	☐	☐	☐	☐

Below are a series of statements about bicycle riders. For each, please tell us to what extent you agree or disagree

Matrix: part 2 of 2

	Strongly Agree
Compared to 12 months ago I have observed fewer incidences of road rage between motorists and bicycle riders	☐
My empathy for bicycle riders has increased in the last 12 months	☐
Compared to 12 months ago I have observed motorists giving bicycle riders more room when overtaking	☐
Compared to 12 months ago I have observed more bicycle riders on the road	☐
Compared to 12 months ago I am more aware of bicycle riders when driving on the road	☐

A 'minimum overtaking distance' rule has been introduced in Queensland. Motor vehicles must leave a minimum 1 metre clearance between their vehicle and a cyclist when overtaking a cyclist on roads with a speed limit of 60 km/h or less, or 1.5 metres clearance on roads with a speed limit over 60km/h. What do you think of this rule? (tick all that apply)

- ☐ I didn't know it was introduced
- ☐ Generally it has made me more aware of cyclists
- ☐ It hasn't changed my driving
- ☐ It only makes it more difficult to pass a cyclist
- ☐ Cyclists use it to block the lane
- ☐ It has made it safer for cyclists
- ☐ I find it difficult to judge this distance
- ☐ It annoys me that cyclists must be given this much clearance
- ☐ Don't know

Other

.....

Which of the following road rules apply in Queensland?			
	Yes	No	I don't know
Bicycle riders must ride within marked bicycle lanes	☐	☐	☐
Bicycle and motorcycle riders are permitted to ride two abreast	☐	☐	☐
Cyclists are permitted to overtake on the left of motor vehicles when the left hand indicator of the motor vehicle is not on	☐	☐	☐
It is illegal to park in a bicycle lane	☐	☐	☐
It is legal, when safe to do so, to cross a continuous line to allow at least 1 metre clearance to pass a cyclist in speed zones of 60 km/h or less	☐	☐	☐
Cyclists in Queensland can cycle on footpaths unless otherwise signed	☐	☐	☐
Cyclists can treat stop signs as give way signs where it is safe to do so	☐	☐	☐
Cyclists are permitted to ride across pedestrian crossings, after coming to a complete stop	☐	☐	☐
Drivers must give way to cyclists	☐	☐	☐
Cyclists must give way to any vehicle leaving a roundabout	☐	☐	☐

Please rate how certain or uncertain you are of the following:

Matrix part 1 of 2

	Very uncertain	Uncertain	Neither Certain or Uncertain	Certain
Bicycle riders can judge if an overtaking car is at least 1 metre away.	☐	☐	☐	☐
I can judge that I have left at least 1 metre clearance when overtaking a bicycle rider.	☐	☐	☐	☐
Other drivers can judge that they have left at least 1 metre clearance when overtaking a bicycle rider.	☐	☐	☐	☐
Police can judge that a driver has left at least 1 metre clearance when overtaking a bicycle rider.	☐	☐	☐	☐
Bicycle riders can judge if an overtaking car is at least 1.5 metres away when riding.	☐	☐	☐	☐
I can judge that I have left at least 1.5 metres clearance when overtaking a bicycle rider.	☐	☐	☐	☐
Other drivers can judge that they have left at least 1.5 metres clearance when overtaking a bicycle rider.	☐	☐	☐	☐
Police can judge that a driver has left at least 1.5 metres clearance when overtaking a bicycle rider.	☐	☐	☐	☐

Please rate how certain or uncertain you are of the following:

Matrix part 2 of 2

	Very Certain
Bicycle riders can judge if an overtaking car is at least 1 metre away.	☐
I can judge that I have left at least 1 metre clearance when overtaking a bicycle rider.	☐
Other drivers can judge that they have left at least 1 metre clearance when overtaking a bicycle rider.	☐
Police can judge that a driver has left at least 1 metre clearance when overtaking a bicycle rider.	☐
Bicycle riders can judge if an overtaking car is at least 1.5 metres away when riding.	☐
I can judge that I have left at least 1.5 metres clearance when overtaking a bicycle rider.	☐
Other drivers can judge that they have left at least 1.5 metres clearance when overtaking a bicycle rider.	☐
Police can judge that a driver has left at least 1.5 metres clearance when overtaking a bicycle rider.	☐

How easy do you think it is for drivers to comply with the minimum passing distance rule in the following situations? Fourteen situations are presented. Please read the descriptions carefully as there are slight variations between the scenarios. For all situations, please imagine you are travelling on a straight, flat road with good sight distance.

Matrix: part 1 of 2

	Very Hard	Hard	Neither Easy or Hard	Easy
Situation 1: You are driving on a multi-lane road with a 60 km/h speed limit. The road has a broken centre line and broken lane lines. There is no bicycle lane. You are driving in the left hand lane and approaching a bicycle rider who is also travelling in the left hand lane. There is no traffic in the right hand lane.	☐	☐	☐	☐

How easy do you think it is for drivers to comply with the minimum passing distance rule in the following situations? Fourteen situations are presented. Please read the descriptions carefully as there are slight variations between the scenarios. For all situations, please imagine you are travelling on a straight, flat road with good sight distance.

Matrix: part 2 of 2

	Very Easy
Situation 1: You are driving on a multi-lane road with a 60 km/h speed limit. The road has a broken centre line and broken lane lines. There is no bicycle lane. You are driving in the left hand lane and approaching a bicycle rider who is also travelling in the left hand lane. There is no traffic in the right hand lane.	☐

Matrix: part 1 of 2

	Very Hard	Hard	Neither Easy or Hard	Easy
Situation 2: You are driving on a road with a single traffic lane in each direction and a 60km/h speed limit. The road has a broken centre line. There is no bicycle lane. You approach a bicycle rider travelling in the same direction as you in the traffic lane. There is no oncoming traffic.	☐	☐	☐	☐

Matrix: part 2 of 2

	Very Easy
Situation 2: You are driving on a road with a single traffic lane in each direction and a 60km/h speed limit. The road has a broken centre line. There is no bicycle lane. You approach a bicycle rider travelling in the same direction as you in the traffic lane. There is no oncoming traffic.	☐

Matrix: part 1 of 2

	Very Hard	Hard	Neither Easy or Hard	Easy
Situation 3: You are driving on a multi-lane road with a 60 km/h speed limit. The road has a broken centre line and broken lane markings. There is no bicycle lane. You are driving in the left hand lane and you approach a bicycle rider travelling in the left hand lane. There are multiple vehicles already travelling in the righthand lane.	☐	☐	☐	☐

Matrix: part 2 of 2

	Very Easy
Situation 3: You are driving on a multi-lane road with a 60 km/h speed limit. The road has a broken centre line and broken lane markings. There is no bicycle lane. You are driving in the left hand lane and you approach a bicycle rider travelling in the left hand lane. There are multiple vehicles already travelling in the righthand lane.	☐

Matrix: part 1 of 2

	Very Hard	Hard	Neither Easy or Hard	Easy
Situation 4: You are driving on a road with a single traffic lane in each direction and a 60km/h speed limit. The road has an unbroken centre line. There is no bicycle lane. You approach a bicycle rider travelling in the same direction as you in the traffic lane. There is no oncoming traffic.	☐	☐	☐	☐

Matrix: part 2 of 2

	Very Easy
Situation 4: You are driving on a road with a single traffic lane in each direction and a 60km/h speed limit. The road has an unbroken centre line. There is no bicycle lane. You approach a bicycle rider travelling in the same direction as you in the traffic lane. There is no oncoming traffic.	☐

Matrix part 1 of 2

	Very Hard	Hard	Neither Easy or Hard	Easy
Situation 5: You are driving on a road with a single traffic lane in each direction and a 60km/h speed limit. The road has an unbroken centre line. There is no bicycle lane. You approach a bicycle rider travelling in the same direction as you in the traffic lane.There are multiple vehicles driving towards you in the oncoming traffic lane.	☐	☐	☐	☐

Matrix part 2 of 2

	Very Easy
Situation 5: You are driving on a road with a single traffic lane in each direction and a 60km/h speed limit. The road has an unbroken centre line. There is no bicycle lane. You approach a bicycle rider travelling in the same direction as you in the traffic lane.There are multiple vehicles driving towards you in the oncoming traffic lane.	☐

Matrix part 1 of 2

	Very Hard	Hard	Neither Easy or Hard	Easy
Situation 6: You are driving on a road with a single traffic lane in each direction and a 60km/h speed limit. The road has an unbroken centre line. There is a marked bicycle lane. You approach a bicycle rider travelling in the same direction as you in the bicycle lane. There is no oncoming traffic.	☐	☐	☐	☐

Matrix part 2 of 2

	Very Easy
Situation 6: You are driving on a road with a single traffic lane in each direction and a 60km/h speed limit. The road has an unbroken centre line. There is a marked bicycle lane. You approach a bicycle rider travelling in the same direction as you in the bicycle lane. There is no oncoming traffic.	☐

Matrix: part 1 of 2

	Very Hard	Hard	Neither Easy or Hard	Easy
Situation 7: You are driving on a road with a single traffic lane in each direction and a 60km/h speed limit. The road has a broken centre line. There is no bicycle lane.You approach a group of 10 bicycle riders riding 2 abreast travelling in the same direction as you in the traffic lane. There is no oncoming traffic.	☐	☐	☐	☐

Matrix: part 2 of 2

	Very Easy
Situation 7: You are driving on a road with a single traffic lane in each direction and a 60km/h speed limit. The road has a broken centre line. There is no bicycle lane.You approach a group of 10 bicycle riders riding 2 abreast travelling in the same direction as you in the traffic lane. There is no oncoming traffic.	☐

Matrix: part 1 of 2

	Very Hard	Hard	Neither Easy or Hard	Easy
Situation 8: You are driving on a road with a single traffic lane in each direction and a 60km/h speed limit. The road has a broken centre line. There is no bicycle lane. You approach 2 bicycle riders riding 2 abreast travelling in the same direction as you in the traffic lane. There is no oncoming traffic.	☐	☐	☐	☐

Matrix: part 2 of 2

	Very Easy
Situation 8: You are driving on a road with a single traffic lane in each direction and a 60km/h speed limit. The road has a broken centre line. There is no bicycle lane. You approach 2 bicycle riders riding 2 abreast travelling in the same direction as you in the traffic lane. There is no oncoming traffic.	☐

Matrix: part 1 of 2

	Very Hard	Hard	Neither Easy or Hard	Easy
Situation 9: You are driving on a multi-lane road with a speed limit of 80 km/h. The road has a broken centre line and broken lane markings. There is no bicycle lane. You are driving in the left hand lane and approaching a bicycle rider who is also travelling in the left hand lane. There is no traffic in the right hand lane.	☐	☐	☐	☐

Matrix part 2 of 2

	Very Easy
Situation 9: You are driving on a multi-lane road with a speed limit of 80 km/h. The road has a broken centre line and broken lane markings. There is no bicycle lane. You are driving in the left hand lane and approaching a bicycle rider who is also travelling in the left hand lane. There is no traffic in the right hand lane.	☐

Matrix part 1 of 2

	Very Hard	Hard	Neither Easy or Hard	Easy
Situation 10: You are driving on a road with a single traffic lane in each direction and a speed limit of 80 km/h. The road has a broken centre line. There is no bicycle lane,but there is a wide road shoulder. You approach a bicycle rider travelling in the same direction as you cycling on the wide shoulder. There is no oncomingtraffic.	☐	☐	☐	☐

Matrix part 2 of 2

	Very Easy
Situation 10: You are driving on a road with a single traffic lane in each direction and a speed limit of 80 km/h. The road has a broken centre line. There is no bicycle lane,but there is a wide road shoulder. You approach a bicycle rider travelling in the same direction as you cycling on the wide shoulder. There is no oncomingtraffic.	☐

Matrix part 1 of 2

	Very Hard	Hard	Neither Easy or Hard	Easy
Situation 11: You are driving on a multi-lane road with a speed limit of 80 km/h. The road has a broken centre line and broken lane markings. There is no bicycle lane. You are driving in the left hand lane and you approach a bicycle rider travelling in the left hand lane. There are multiple vehicles already travelling in the adjacent traffic lane.	☐	☐	☐	☐

Matrix: part 2 of 2

	Very Easy
Situation 11: You are driving on a multi-lane road with a speed limit of 80 km/h. The road has a broken centre line and broken lane markings. There is no bicycle lane. You are driving in the left hand lane and you approach a bicycle rider travelling in the left hand lane. There are multiple vehicles already travelling in the adjacent traffic lane.	☐

Matrix: part 1 of 2

	Very Hard	Hard	Neither Easy or Hard	Easy
Situation 12: You are driving on a road with a single traffic lane in each direction and a speed limit of 80 km/h. The road has a broken centre line. There is no bicycle lane. You approach a bicycle rider travelling in the same direction as you in the traffic lane. There is no oncoming traffic.	☐	☐	☐	☐

Matrix: part 2 of 2

	Very Easy
Situation 12: You are driving on a road with a single traffic lane in each direction and a speed limit of 80 km/h. The road has a broken centre line. There is no bicycle lane. You approach a bicycle rider travelling in the same direction as you in the traffic lane. There is no oncoming traffic.	☐

Matrix: part 1 of 2

	Very Hard	Hard	Neither Easy or Hard	Easy
Situation 13: You are driving on a road with a single traffic lane in each direction with a speed limit of 80 km/h. The road has unbroken double white centre lines. There is no bicycle lane. You approach a bicycle rider travelling in the same direction as you in the traffic lane. There is no oncoming traffic.	☐	☐	☐	☐

Matrix: part 2 of 2

	Very Easy
Situation 13: You are driving on a road with a single traffic lane in each direction with a speed limit of 80 km/h. The road has unbroken double white centre lines. There is no bicycle lane. You approach a bicycle rider travelling in the same direction as you in the traffic lane. There is no oncoming traffic.	☐

Matrix: part 1 of 2

	Very Hard	Hard	Neither Easy or Hard	Easy
Situation 14: You are driving on a road with a single traffic lane in each direction and a speed limit of 80 km/h. The road has an unbroken centre line. There is a bicycle lane. You approach a bicycle rider travelling in the same direction as you who is riding in the marked bicycle lane. There are multiple vehicles driving towards you in the oncoming traffic lane.	☐	☐	☐	☐

Matrix: part 2 of 2

	Very Easy
Situation 14: You are driving on a road with a single traffic lane in each direction and a speed limit of 80 km/h. The road has an unbroken centre line. There is a bicycle lane. You approach a bicycle rider travelling in the same direction as you who is riding in the marked bicycle lane. There are multiple vehicles driving towards you in the oncoming traffic lane.	☐

Please describe any other situations where it is difficult to comply with the minimum passing distance road rule.

.....

.....

.....

.....

To what extent do you agree/disagree with the law that requires motorists to stay a minimum distance of 1 metre away when passing a bicycle rider on roads with speed limits of 60 km/h or less and 1.5 metres when travelling on roads with speed limits of greater than 60 km/h?

- ○ Strongly Agree
- ○ Agree
- ○ Neither agree nor disagree
- ○ Disagree
- ○ Strongly Disagree

Do you think that the police are enforcing the minimum passing distance road rule?

- ○ Yes
- ○ No
- ○ I don't know

How much do you think the police are enforcing the following violations?

Matrix: part 1 of 2

	Not at all	Not much	Somewhat	A fair bit
Bicycle riders not wearing helmets	☐	☐	☐	☐
Car occupants not wearing seatbelts	☐	☐	☐	☐
Riding a bicycle through red lights	☐	☐	☐	☐
Driving through red lights	☐	☐	☐	☐
Riding a bicycle while under the influence of alcohol	☐	☐	☐	☐
Driving while under the influence of alcohol	☐	☐	☐	☐
Drivers passing cyclists closer than the Minimum Passing Distance road rule states	☐	☐	☐	☐

How much do you think the police are enforcing the following violations?

Matrix: part 2 of 2

	A lot
Bicycle riders not wearing helmets	☐
Car occupants not wearing seatbelts	☐
Riding a bicycle through red lights	☐
Driving through red lights	☐
Riding a bicycle while under the influence of alcohol	☐
Driving while under the influence of alcohol	☐
Drivers passing cyclists closer than the Minimum Passing Distance road rule states	☐

To what extent do you feel that the minimum passing distance road rule has improved bicycle rider safety?

- ○ It has made cycling on the road much less safe
- ○ It has made cycling on the road a little less safe
- ○ It has made no difference to cycling safety on the road
- ○ It has made cycling on the road a little safer
- ○ It has made cycling on the road much safer

Have you had any accidents while driving in the last 12 months?

- ○ No
- ○ Yes

How many accidents have you had while driving in the last 12 months?

.....

Have you had any accidents while driving that involved a bicycle rider in the last 12 months?

- ○ No
- ○ Yes

How many accidents that involved a bicycle rider have you had while driving in the last 12 months?

	Number
	.....

What was the MAIN cause of the MOST severe accident that involved a bicycle, and you were driving, in the last 12 months?

- ○ Collision with a bicycle that you were overtaking
- ○ Other type of collision with a bicycle
- ○ Collision with a vehicle, travelling in the same direction as you, when overtaking a bicycle rider
- ○ Collision with a vehicle, travelling in the opposite direction to you, when overtaking a bicycle rider
- ○ A bicycle rider fell after being overtaken by you, but was not struck by your car

Other

.....

Was anyone injured?

- ○ No
- ○ Bicycle rider
- ○ Car occupant

Other

.....

What treatment did the injured person require?

- ○ None
- ○ Taken away in an ambulance
- ○ Don't know

Other

.....

Have you had any near-miss events in the past 12 months that relate to the following situations? (tick all that apply)

- ☐ Near-miss with a bicycle you were overtaking
- ☐ Other type of near-miss with a bicycle
- ☐ Near-miss with a vehicle, travelling in the same direction as you, when you were overtaking a bicycle rider
- ☐ Near-miss with a vehicle, travelling in the opposite direction to you, when you were overtaking a bicycle rider

Other

.....

Demographics You are near the end of the survey. Your answers to the next few questions are very important because they will tell us alittle about who cycles. These questions are quite easy and quick.

Please indicate your gender

- ○ Male
- ○ Female

What was the year of your birth?

.....

What is the postcode of your primary residence?

.....

What is the highest educational qualification you have completed? (Please only select the highest)

- ○ No formal education
- ○ Year 10
- ○ High school or senior certificate
- ○ Trade qualifications or certificate/diploma
- ○ University degree
- ○ Postgraduate degree (e.g. Grad Dip, Masters, PhD)

Are you a member of any of the following? (tick all that apply)

- ☐ Bicycle Queensland (BQ)
- ☐ Royal Automobile Club Queensland (RACQ)
- ☐ Cycling Queensland (CQ)
- ☐ Triathlon Queensland (TQ)

Have you ridden a bicycle on the road, in Queensland, in the last 12 months?

- ○ Yes
- ○ No

When riding on the road, which type of bicycle do you ride most frequently?

- ○ Road
- ○ Mountain
- ○ Hybrid
- ○ Cruiser
- ○ Fixie
- ○ Uni-cycle
- ○ Recumbent
- ○ Folding
- ○ City
- ○ Electric

How often have your ridden a bicycle, in an average week, in the last year?

- ○ 5-7 days per week
- ○ 3-4 days per week
- ○ 1-2 days per week
- ○ At least once every month
- ○ At least once every three months
- ○ At least once in the last year

Thank you for participating in the survey. Please indicate if you would be interested in entering the random draw for one of five $200 Coles Myer vouchers, and click submit.

- ○ Yes
- ○ No

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APPENDIX 3 RECRUITMENT ARTICLE IN RACQ MAGAZINE

HAVE YOUR SAY ON CYCLING LAWS

RACQ MEMBERS AGED 18 and over are being invited to take part in a survey to measure the effects of the Queensland Government's new cycling laws.

In March 2014, the State Government began a trial of new laws requiring drivers to leave at least a metre distance when passing cyclists where the speed limit is 60km/h and 1.5 metres in higher speed zones. It has commissioned the Centre for Accident Research and Road Safety-Queensland (CARRS-Q) at the Queensland University of Technology to measure the effects of the new rules.

As a part of their research, CARRS-Q is inviting RACQ members to complete a survey about how practical the rule is for drivers, what effects they've had on them as drivers, and what drivers think about them. The online survey will take about 15 minutes and there are five $200 Coles-Myer gift cards to be won. The survey is anonymous and you do not have to answer any questions that you do not want to.

Access the survey by using the QR code below or typing **www.carrsq.edu.au/cyclinglaw** into your computer's internet browser. An information sheet is provided at the beginning of the survey and more details can be obtained from Amy Schramm on 3138 4944 or email **a.schramm@qut.edu.au.**

A similar survey of cyclists is being conducted through Bicycle Queensland.

FAQS ABOUT ROAD RULES

WITH SENIOR ROAD SAFETY ADVISOR JOEL TUCKER

Q: When can I drive on or over the central island at a roundabout?

A: The general rule is that drivers must drive to the left of the central traffic island at a roundabout. However, if their vehicle is too large to negotiate the roundabout without driving over the left-hand edge of it, they are permitted to do so, provided it is safe. SUVs are not normally too large to follow the rules.

Q: What rules apply at pedestrian refuges and safety zones?

A: Road users must drive to the left of safety zones at a speed that does not put pedestrians at risk. Pedestrians must not move into the path of vehicles and must not stay on the road for any longer than necessary to cross it, to or from the safety zone/refuge, safely.

BMW ELECTRIC BUBBLING ALONG

DRIVING OUR FUTURE WITH GENEVIEVE GRAVES

THE CHAMPAGNE WAS flowing at BMW Brisbane with the release of the long-awaited i3 late last year.

The company sold 17 of the fully battery electric cars in the first week. While that is no iPhone 6 type of sales record, it is better than other Australian electric vehicle (EV) sales to date. But why is this something to celebrate?

I took the i3 for a spin and it felt good – it certainly has some significant advances over the other EVs on offer.

The cabin is high, so the car feels more like a small SUV than a hatch. This is a plus for road view, and I didn't feel cramped or as though I would hit my head if the car went over a big bump. It has all the kit you need, including rain sensor wipers, passenger temperature settings, and navigation and communication systems that include internet connectivity. That is useful to provide up-to-date traffic information and route alternatives.

It also has a pedestrian alert that sounds outside and inside the vehicle, and will even override the driver and brake autonomously to avoid a crash if the driver fails to react. Like all EVs, the car is whisper quiet.

The EV detail seems pretty well sorted. Clearly the German technology focus has played a role here. The car body is made of carbon fibre for weight reduction and the battery range is up to 130km. It plugs into a normal wall socket.

The other reason for the champagne is because this is another small step in diversifying our vehicle fleet.

Australia has a petrol-dependent car fleet. All well and good unless we have an interruption to supply and are left no alternative but long walks or bike rides. In my view, the more choices we have the better. Electric vehicles are a great start.

Let's hope the champagne flowed in the Formula 1 style (think shake and spurt), rather than in the traditional break over the bow used for ships. I am sure Ruthie and Howdie Farrar (pictured) agree, as they took delivery of the first i3 to be sold in Queensland.

APPENDIX 4 COMPARISON OF THE DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS FROM THE CYCLING IN QUEENSLAND SURVEY AND CURRENT SURVEY

Basic demographic characteristics (age, gender, education, location of residence, cycling experience) are presented below.

Table A4.1. Demographic characteristics for the Cycling in Queensland (CIQ) survey (conducted in 2009) and the current survey

	CIQ survey N=1761		Current survey N=3013	
Characteristics	**n**	**%**	**n**	**%**
Age (years)				
18-34	200	11.36	243	8.1
35-44	463	26.29	666	22.1
45-54	619	35.15	997	33.1
55-64	347	19.70	775	25.7
65+	132	7.50	332	11.0
Gender				
Male	1,261	71.61	2,411	80.0
Female	500	28.39	602	20.0
Education[a]				
No high school certificate	75	4.30	85	2.8
High school/senior certificate	171	9.80	211	7.0
Trade/apprenticeship or certificate/diploma	339	19.43	686	22.8
Undergraduate degree	596	34.15	1,034	34.3
Postgraduate university degree	564	32.32	982	32.6
Location or residence				
Major Cities	1432	81.36	2293	76.4
Inner Regional	245	13.92	150	5.0
Outer Regional, Rural or Remote	83	4.72		4.6*
Years of cycling as an adult				
10+ years	776	44.07	1,621	53.8
5 - < 10	407	23.11	686	22.8
2 - < 5	434	24.65	568	18.9
0 - < 2	144	8.18	123	4.1
Cycling frequency				
5-7 days/week	433	24.1	784	26.0
3-4 days/week	693	39.9	1,248	41.4
1-2 days/week	474	29.2	764	25.4
At least once/month	93	6.8	158	5.2
At least once every 3 months	45	2.56	37	1.6
At least once in last year	23	1.31	19	0.6
	median	range	median	range
Cycling for recreation or transport last week (hours)	4.5	0-90	6.0	0-50
Cycling for recreation (distance)	50	0-1200	120	0-600

[a]16 participants did not report their educational level.

*13.9% of postcodes combined two or more categories of Major cities, Inner regional, and others; 0.1% of postcodes could not be identified (potentially new postcodes, or keying errors)

APPENDIX 5 ANOVA TABLES FOR SITUATIONS PRESENTED TO DRIVERS AND CYCLISTS IN THE ONLINE SURVEY

The following table presents the ANOVA tables comparing driver and cyclist ratings of overtaking difficulty for the 14 scenarios presented in the survey.

Table A5.1. ANOVA tables, comparisons of rating of difficulty of complying with road rule when overtaking a bicycle for drivers and cyclists

		Sum of Squares	df	Mean Square	F	Sig.
Scenario 1	Between Groups	218.153	1	218.153	297.478	.000
	Within Groups	5359.995	7309	.733		
	Total	5578.148	7310	160.273		
Scenario 2	Between Groups	160.273	1	160.273	217.411	.000
	Within Groups	5377.794	7295	.737		
	Total	5538.066	7296			
Scenario 3	Between Groups	1078.214	1	1078.214	8789.407	.000
	Within Groups	8881.648	7244	1.226		
	Total	9959.863	7245			
Scenario 4	Between Groups	544.802	1	544.802	463.741	.000
	Within Groups	8496.137	7232	1.175		
	Total	9040.939	7233			
Scenario 5	Between Groups	780.804	1	780.804	616.530	.000
	Within Groups	9183.023	7251	1.266		
	Total	9963.828	7252			
Scenario 6	Between Groups	403.092	1	403.092	536.717	.000
	Within Groups	5455.500	7264	.751		
	Total	5858.592	7265			
Scenario 7	Between Groups	785.837	1	785.837	525.396	.000
	Within Groups	10846.846	7252	1.496		
	Total	11632.683	7253			
Scenario 8	Between Groups	569.347	1	569.347	454.274	.000
	Within Groups	9068.950	7236	1.253		
	Total	9638.296	7237			
Scenario 9	Between Groups	307.620	1	307.620	392.069	.000
	Within Groups	5678.994	7238	.785		
	Total	5986.614	7239			
Scenario 10	Between Groups	506.684	1	506.684	659.334	.000
	Within Groups	5580.694	7262	.768		
	Total	6087.378	7263			
Scenario 11	Between Groups	791.639	1	791.639	692.235	.000
	Within Groups	8292.233	7251	1.144		
	Total	9083.872	7252			
Scenario 12	Between Groups	231.606	1	231.606	264.731	.000
	Within Groups	6332.332	7238	.875		
	Total	6563.938	7239			
Scenario 13	Between Groups	671.891	1	671.891	437.367	.000
	Within Groups	11091.513	7220	1.536		
	Total	11763.404	7221			
Scenario 14	Between Groups	346.525	1	346.525	228.637	.000
	Within Groups	9842.371	6494	1.516		
	Total	10188.896	6495			

APPENDIX 6 COMPARISON OF COLLISION RESPONSES BY CYCLISTS IN THE CYCLING IN QUEENSLAND SURVEY AND CURRENT SURVEY

Below are comparisons of self-reported crash involvement of riders responding to the Cycling in Queensland (CIQ) survey and the current survey.

Table A6.1. Comparison of number of self-reported injury crashes when cycling in the last year by respondents to the CIQ survey and the current survey

	CIQ survey		Current survey	
Number of injury crashes	**n**	**%**	**n**	**%**
0	1264	71.78	595	53.0
1	377	21.41	414	36.9
2	92	5.22	100	8.9
3	19	1.08	9	0.8
4	7	0.40	2	0.2
5	1	0.06	2	0.2
6	1	0.06	0	0.0
20	0	0.00	1	0.1

Table A6.2. Comparison of crash type for the "most serious" injury crash in the last year by respondents to the CIQ survey and the current survey

	CIQ survey		Current survey	
Cause of injury	**n**	**%**	**n**	**%**
Collision with a moving vehicle	51	12.26	109	17.5
Collision with stationary vehicle or opening door	10	2.40	16	2.6
Collision with a cyclist on road	40	9.62	36	5.8
Collision with a cyclist off road	18	4.33	21	3.4
Collision with pedestrian on road	3	0.72	6	1.0
Collision with pedestrian off road	8	1.92	6	1.0
Swerving to avoid vehicle	18	4.33	61	9.8
Hitting kerb, pothole, other object on	83	19.95	123	19.8

path				
Skid on wet surface	74	18.03	126	20.3
Falling off	110	26.44	82	13.2
Other			36	6.0

APPENDIX 7 COLLECTION OF OBSERVATIONAL DATA

Below are further details regarding the collection of observational data, as well as findings from the data.

A7.1 Road measurements at observation sites

The following table details the road configuration details of the observation sites.

Table A7.1. Road configuration descriptors and lane width measurements for observations sites

Location		Bike lane (BL)	Traffic lanes (TL)	Screen-left BL	Screen-right BL	Screen-left TL1	Screen-left TL2	Screen-right T2	Screen-right T1
Annerley Rd	Pre	Yes	2 lanes each way	2.6m	1.9m	3.1m	2.9m	3.2m	4.0m
	Post	No	2 lanes each way	-	-	3.8m	2.8m	3.2m	3.3m
Breakfast Creek	Pre	No	2 lanes each way			5.2m	3.3m	4m	6.0m
Grey St	Pre	Yes	1 lane each way	1.0m	1.2m	3.9m	-	3.1m	-
	Post	Yes	1 lane each way						
Montague Rd	Pre	BAZ	1 lane each way			3.1m	-	3.0m	-
	Post	Advanced Stop Box	1 lane each way			3.1m	-	3.0m	-
Gladstone Rd	Pre	Yes	2 lanes each way	1.2m	2.0m	3.0m	3.0m	3.0m	3.0m
	Post	Yes	2 lanes each way	1.9m	2.6m	3.0m	3.0m	3.0m	3.1m
Mt Sampson Rd		No	1 lane each way			3.1m			2.8m
Jacaranda Ave		Yes	1 lane each way			4.1m			3.5m
Noosa-Cooroy Rd		No	1 lane each way			4.0m			3.1m
Pacific Blvd		No	1 lane each way			3.0m			2.9m
Hope Island Rd		Yes	2 lanes each way	2.1m	2.0m	3.5m	3.3m	3.4m	3.5m
The Esplanade		No	1 lane each way			3.2m			3.1m
						Screen left shoulder	Left traffic lane	Centre traffic lane	Right traffic lane
Cordelia	Pre	No	3 lanes			2.9m	3.0m	3.3m	3.1m
	Post	No	3 lanes						
Sandgate Rd		No	2 lanes			2.8m	3.4m	-	3.7m

**BL=Bike lane, TL1=Traffic lane 1, TL2=Traffic lane 2

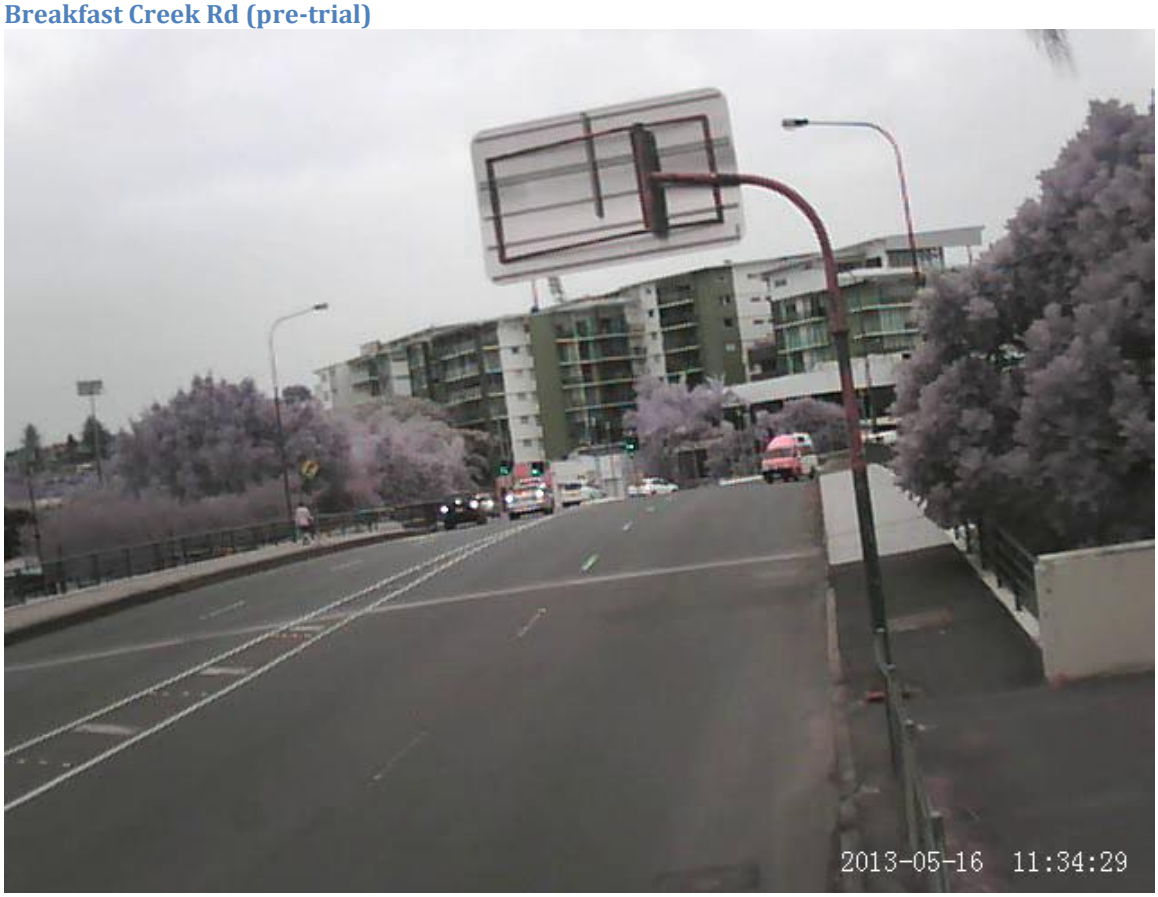
A7.2 Video screenshots from observational sites

The following images are screenshots from the observational data collected.

Annerley Rd (pre-trial)

Annerley Rd (post-commencement)

Breakfast Creek Rd (pre-trial)



Breakfast Creek Rd (post-commencement)

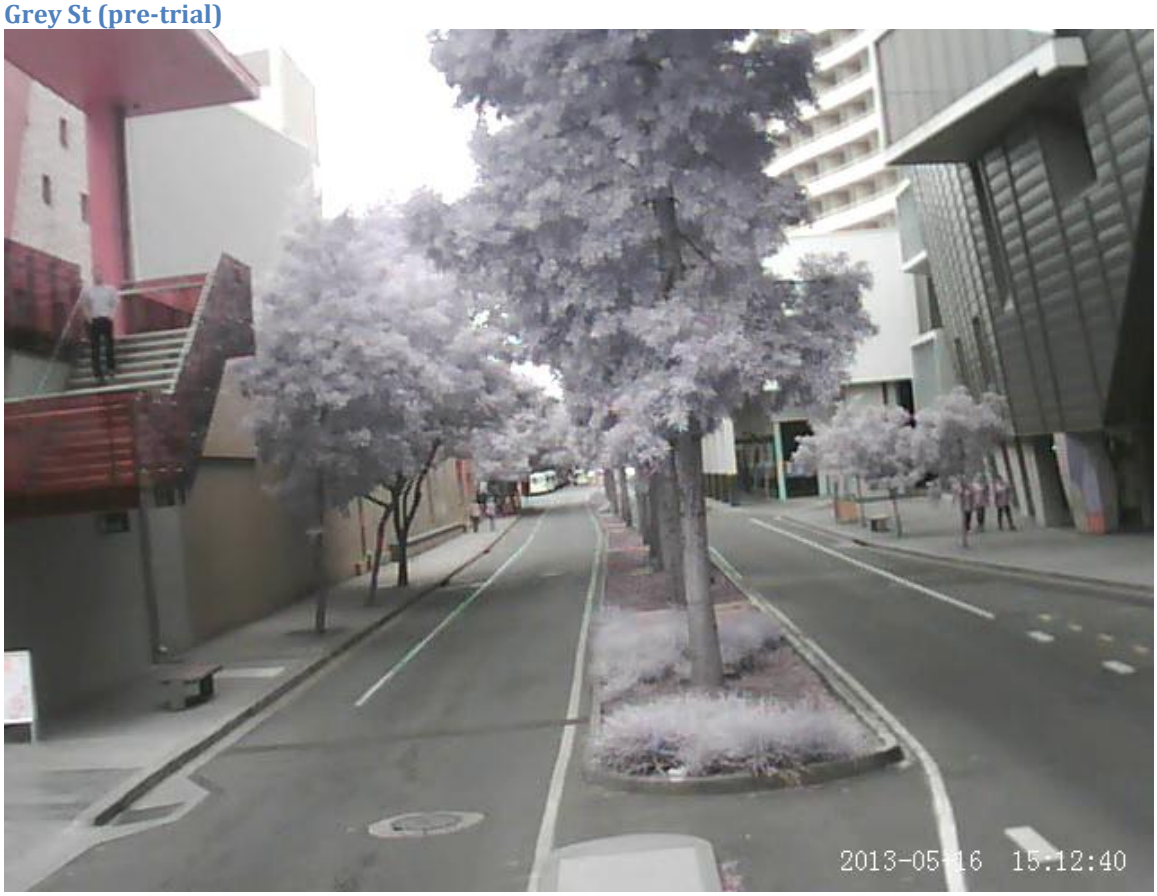
Cordelia St (pre-trial)

Cordelia St (post-commencement)

Gladstone Rd (pre-trial)

Gladstone Rd (post-commencement)

Grey St (pre-trial)



Grey St (post-commencement)

Montague Rd (pre-trial)

Montague Rd (post-commencement)

Sandgate Rd (post-commencement)

Jacaranda Ave (post-commencement)

Mt Sampson Rd (post-commencement)

Bruce Hwy (post-commencement)

Dean St (post-commencement)

Pacific Blvd (post-commencement)

Noosa-Cooroy Rd (post-commencement)

The Esplanade (post-commencement)

Hope Island Rd (post-commencement)

A7.3 Types of vehicles observed passing bicycles

The following tables present the vehicle types observed overtaking bicycles prior to the trial (Table A7.2) and after the trial commenced (Table A7.3).

Table A7.2. Types of vehicles passing bicycles in pre-road rule observational data

	Passenger vehicle (sedan/ wagon)	Passenger vehicle 4WD/SUV	Ute	4WD Ute	Van	Truck/ Semi	Motor cycle/ Scooter	Bus	Taxi	Ambul-ance	Police vehicle
Annerley Rd	56	15	0	3	7	3	2	0	3	1	0
Breakfast Creek Rd	38	19	1	2	1	3	0	0	2	0	0
Cordelia St	5	7	0	1	1	1	1	0	0	0	0
Gladstone Rd	168	57	25	12	9	12	5	6	4	0	1
Grey St	44	15	4	4	0	1	0	0	2	0	0
Montague Rd	58	24	5	3	2	5	0	0	1	0	0

Table A7.3. Types of vehicles passing bicycles in post-MPD road rule observational data

	Passenger vehicle (sedan/ wagon)	Passenger vehicle 4WD/SUV	Ute	4WD Ute	Van	Truck/ Semi	Motor cycle/ Scooter	Bus	Taxi	Ambul-ance	Police vehicle
Annerley Rd	65	9	7	1	2	1	0	1	0	0	0
Breakfast Creek Rd	78	38	4	4	5	3	1	1	15	0	0
Cordelia St	8	2	4	0	0	0	0	0	0	0	0
Gladstone Rd	3	0	0	0	0	0	0	0	0	0	0
Grey St	111	35	10	9	5	5	4	1	17	0	0
Montague Rd	93	33	18	5	4	0	0	2	5	0	0
South Rockhampton	6	2	0	2	1	0	0	0	0	0	0
Dean St	15	3	7	0	0	0	0	2	1	0	0
Mt Sampson Rd	8	4	1	1	0	0	1	0	0	0	0
Sandgate Rd	108	46	31	8	8	7	0	4	0	0	0
Jacaranda Ave	16	7	1	1	0	1	0	1	0	0	0
Noosa-Cooroy Rd	15	0	5	0	0	2	0	1	0	0	0
Pacific Blvd	4	3	0	0	1	0	0	0	0	0	0
Hope Island Rd	191	0	33	0	4	12	3	1	0	0	0
The Esplanade	449	180	55	19	49	10	23	12	8	0	0

A7.4 Summary of passing distance measurements

The following tables provide general descriptives (Mean, Median, Minimum and Maximum) of passing distance values by location for all passing events (Table A7.4), all passing events by vehicles travelling in the same/adjacent lane (Table A7.5), passing events of bicycles travelling single file by all vehicles (Table A7.6), and passing events of bicycles travelling single file by vehicles travelling in the same/adjacent lane (Table A7.7)

Table A7.4. All vehicle passing events (all vehicles, regardless of travel lane)

Location		N	Mean	Median	Minimum	Maximum
Annerley Rd	Pre	91	2.93278270	2.42053700	0.836991	9.251035
	Post	85	1.68961236	1.62905575	0.356098	4.006049
Breakfast Creek Rd	Pre	66	2.43527011	2.22983650	1.345923	5.667007
	Post	149	2.91317152	2.54206100	1.099709	6.424331
Cordelia St	Pre	16	2.28869994	2.36521000	0.823560	3.667824
	Post	14	0.83803025	0.82449999	0.649930	1.220973
Gladstone Rd	Pre	300	2.87522761	2.48169500	0.904322	8.427988
	Post	4	2.04677650	2.29800650	1.222977	2.368116
Grey St	Pre	71	1.50686928	1.51548000	0.833789	2.118525
	Post	213	1.47478625	1.37454700	0.515120	2.919663
Montague Rd	Pre	98	1.61360131	1.52243750	0.465239	3.129353
	Post	164	1.93409616	1.71597368	0.308490	4.899207
Sandgate Rd	Post	212	2.36888931	2.14135950	0.788484	5.431599
Mt Sampson Rd	Post	15	1.72351067	1.54778000	0.943480	2.432310
Jacaranda Ave	Post	29	2.68145841	1.299538498	0.953127	6.110456
Pacific Blvd	Post	8	3.40914788	3.44355550	1.372200	5.580627
Noosa-Cooroy Rd	Post	23	3.66658304	3.66030000	1.778834	5.658648
Hope Island Rd	Post	244	3.08841262	2.51448000	0.296326	12.096503
The Esplanade	Post	804	1.56907708	1.44728300	0.323785	5.431599
Bruce Hwy	Post	14	2.86013643	2.70859300	1.475017	6.658251
Dean St	Post	27	1.06235893	0.8238328	0.215037	4.486560

Table A7.5. All passing events (vehicles passing in the same/adjacent lane)

Location		N	Mean	Median	Minimum	Maximum
Annerley Rd	Pre	81	2.66568425	2.39665500	0.836991	9.251035
	Post	84	1.66452402	1.62866784	0.356098	4.006049
Breakfast Creek Rd	Pre	57	2.24717998	2.16968300	1.345923	5.667007
	Post	118	2.46199388	2.28789800	1.099709	6.267540
Cordelia St	Pre	3	2.36087600	2.56124400	0.823560	3.667824
	Post	14	0.83803025	0.82449999	0.649930	1.220973
Gladstone Rd	Pre	187	2.07208795	1.84231400	0.904322	5.015839
	Post					
Grey St*	Pre					
	Post					
Montague Rd*	Pre					
	Post					
Sandgate Rd	Post	179	2.14518084	1.96785100	0.788484	4.083425
Mt Sampson Rd*	Post					
Jacaranda Ave*	Post					
Pacific Blvd*	Post					
Noosa-Cooroy Rd*	Post					
Hope Island Rd	Post	185	2.11515443	1.92308700	0.296326	6.137232
The Esplanade*	Post					
Bruce Hwy	Post	13	2.57874300	2.67433100	1.475017	3.927207
Dean St	Post	26	0.99035319	0.77777073	0.215037	4.486460

*Single-lane roads only

Table A7.6. All passes of bicycles travelling single-file (individuals, and groups travelling single file) (all vehicle passing events)

Location		N	Mean	Median	Minimum	Maximum
Annerley Rd	Pre					
	Post	84	1.70254550	1.63576626	0.356098	4.006049
Breakfast Creek Rd	Pre					
	Post	133	2.82642950	2.45555900	1.099709	6.424331
Cordelia St	Pre					
	Post	14	0.83803025	0.82559999	0.649930	1.220973
Gladstone Rd	Pre					
	Post	4	2.05677650	2.29800650	1.222977	2.368116
Grey St	Pre					
	Post	167	1.46026392	1.37454700	0.515120	2.880631
Montague Rd	Pre					
	Post	139	1.89901198	1.62379317	0.308490	4.899207
Sandgate Rd	Post	155	2.21046219	1.98853300	0.788484	4.516264
Mt Sampson Rd	Post	15	1.72351067	1.64778000	0.943480	2.432310
Jacaranda Ave	Post	29	2.68145841	2.48023200	0.953127	6.110456
Pacific Blvd	Post	8	3.40915788	3.44355550	1.372200	5.580627
Noosa-Cooroy Rd	Post	23	3.66658304	3.66030000	1.778834	5.658648
Hope Island Rd	Post	181	3.17665844	2.55143400	0.296326	12.096503
The Esplanade	Post	749	1.5436817	1.42546800	0.323785	4.449482
Bruce Hwy	Post	12	2.79836433	2.57701150	1.475017	6.658251
Dean St	Post	25	1.11747225	0.8294359	0.215037	4.486460

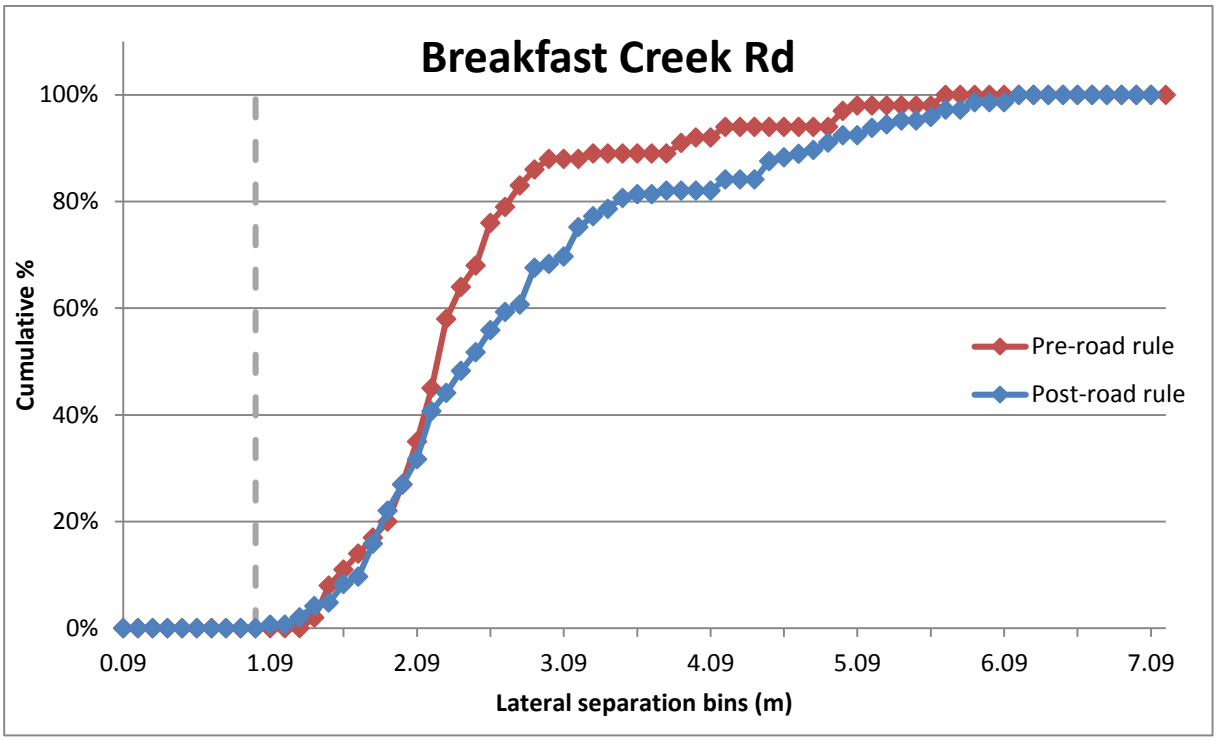
Table A7.7. All passes of bicycles travelling single-file (individuals, and groups travelling single file) (vehicles passing in the same/adjacent lane)

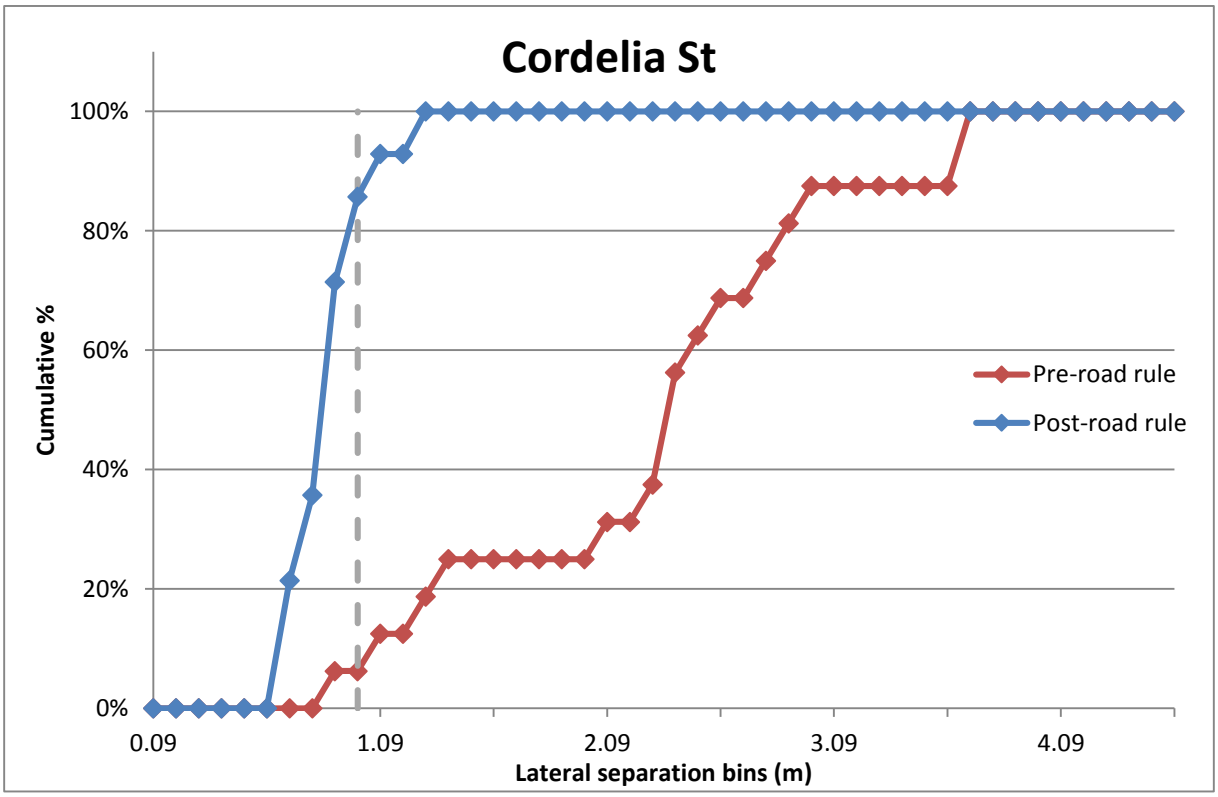
Location		N	Mean	Median	Minimum	Maximum
Annerley Rd	Pre Post	83	1.67731044	1.62905575	0.356098	4.006049
Breakfast Creek Rd	Pre Post	109	2.39445001	2.26709300	1.099709	4.841570
Cordelia St	Pre Post	14	0.83803025	0.82449999	0.649930	1.220973
Gladstone Rd	Pre Post	4	2.04677650	2.29800650	1.222977	2.368116
Grey St*	Pre Post					
Montague Rd*	Pre Post					
Sandgate Rd	Post	144	2.0906540	1.93296800	0.788484	4.083425
Mt Sampson Rd*	Post					
Jacaranda Ave*	Post					
Pacific Blvd*	Post					
Noosa-Cooroy Rd*	Post					
Hope Island Rd	Post	134	2.14196795	1.93208900	0.296326	6.137232
The Esplanade*	Post					
Bruce Hwy	Post	11	2.44746555	2.41116800	1.475017	3.515177
Dean St*	Post					

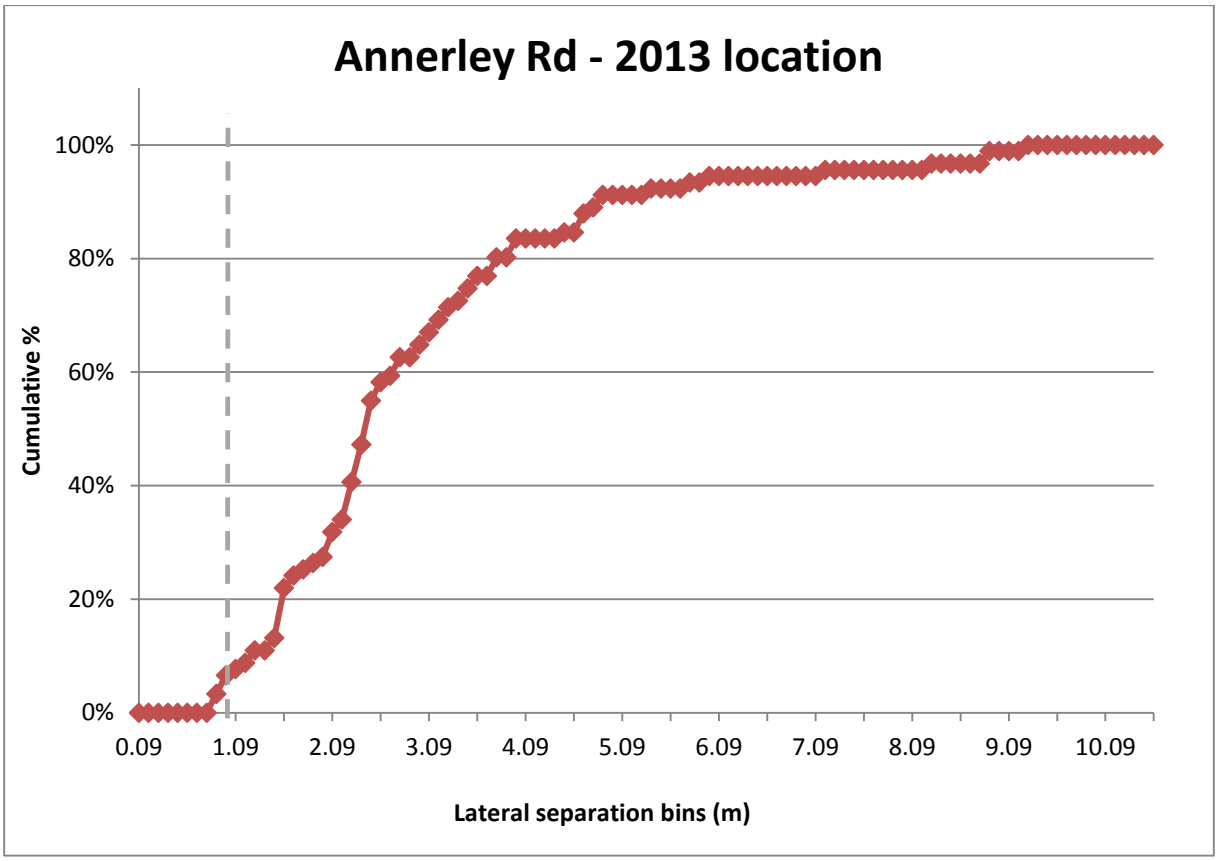
*Single-lane roads only

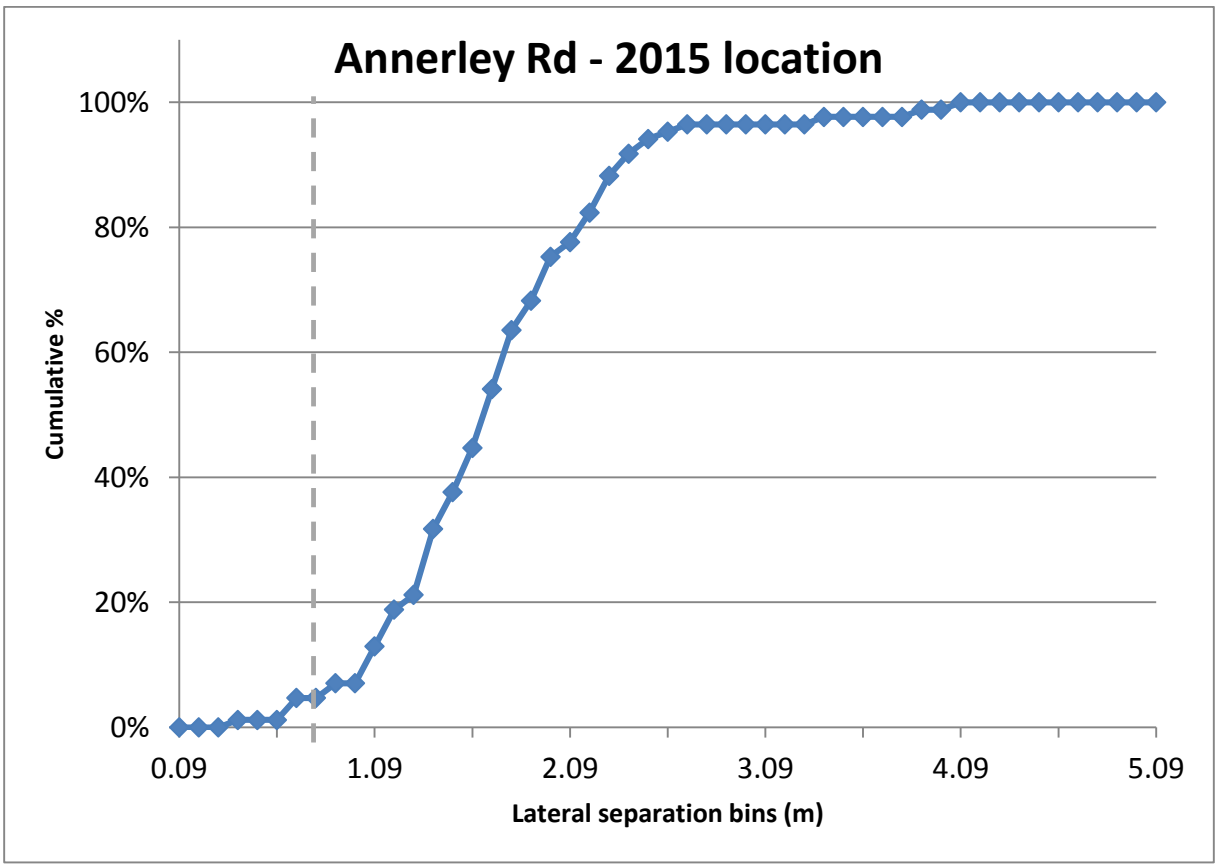
A7.5 Cumulative frequency histograms of passing distances

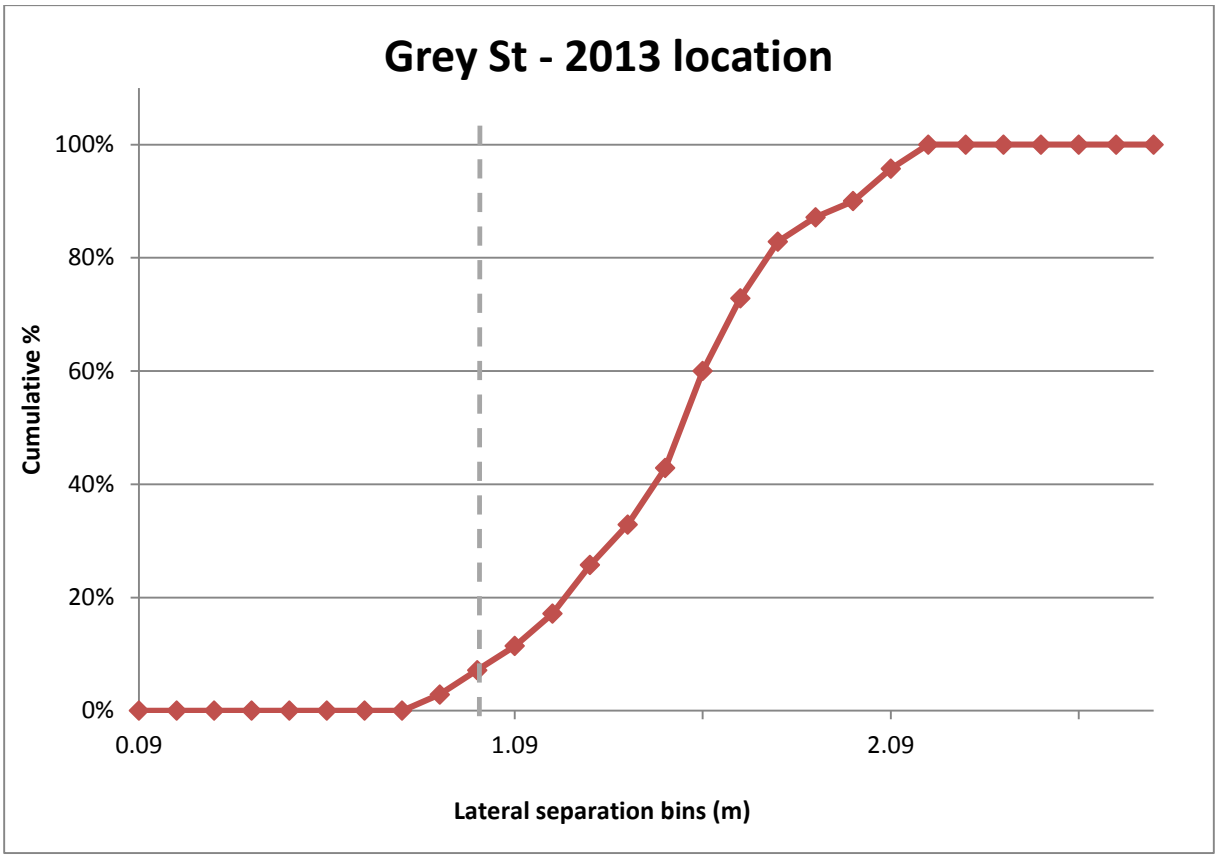
The following figures show the percentages of passing events with less than a given separation distance pre- and post-MPD road rule trial at each of the sites. Non-matching pre-post locations where pre-post analyses were therefore not possible have been separated.

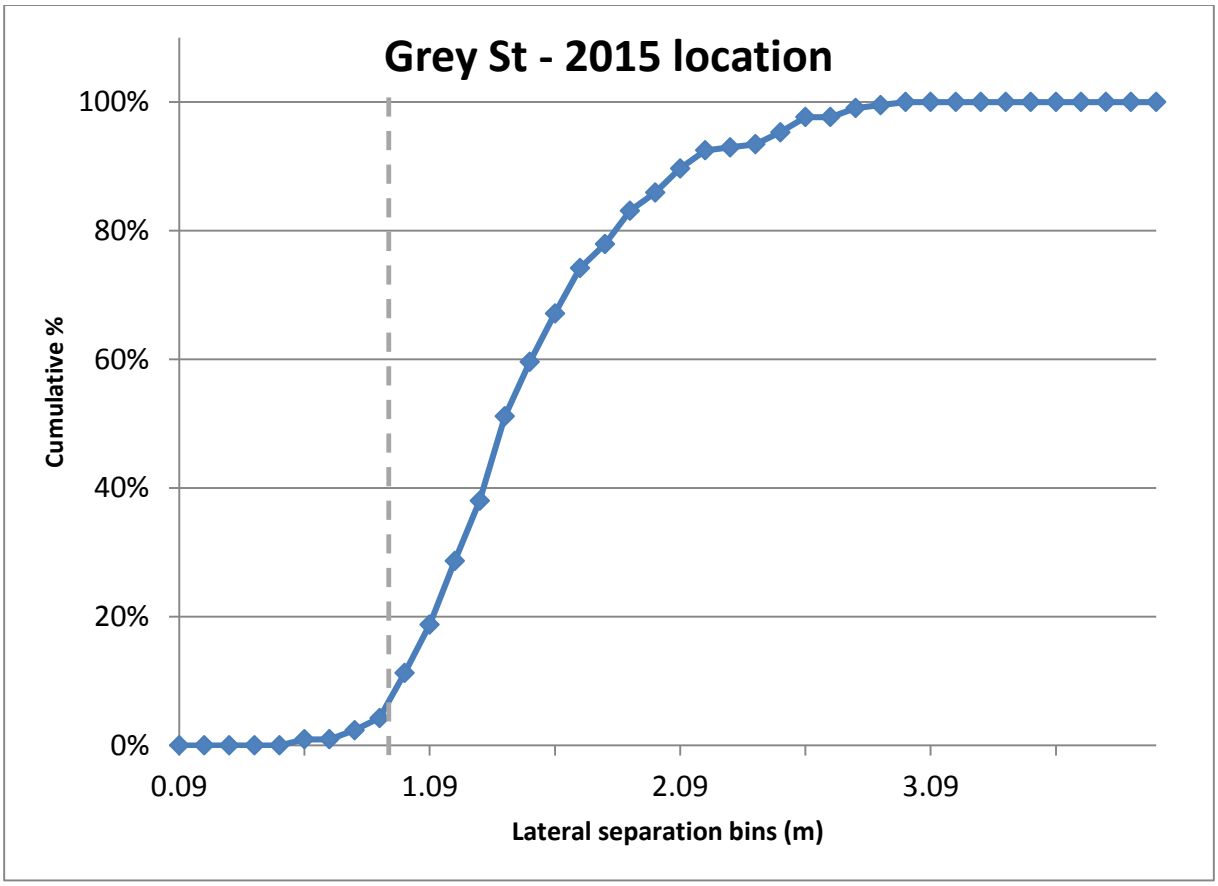


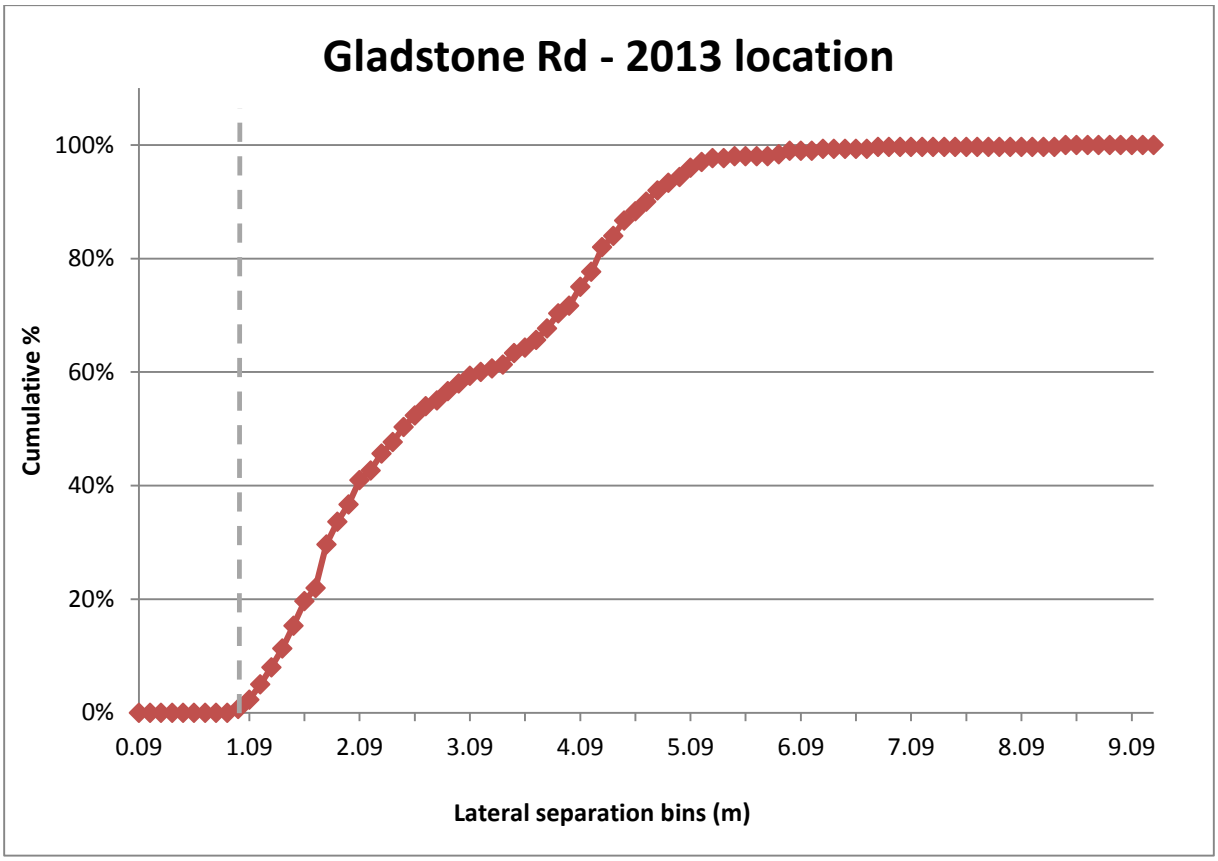



Annerley Rd - 2013 location
100%
80%
60%
40%
20%
0%
Cumulative %
0.09
1.09
2.09
3.09
4.09
5.09
6.09
7.09
8.09
9.09
10.09
Lateral separation bins (m)


Annerley Rd - 2015 location
100%
80%
60%
40%
20%
0%
Cumulative %
0.09
1.09
2.09
3.09
4.09
5.09
Lateral separation bins (m)


Grey St - 2013 location
100%
80%
60%
40%
20%
0%
Cumulative %
0.09
1.09
2.09
Lateral separation bins (m)


Grey St - 2015 location
100%
80%
60%
40%
20%
0%
Cumulative %
0.09
1.09
2.09
3.09
Lateral separation bins (m)


Gladstone Rd - 2013 location
100%
80%
60%
40%
20%
0%
Cumulative %
0.09
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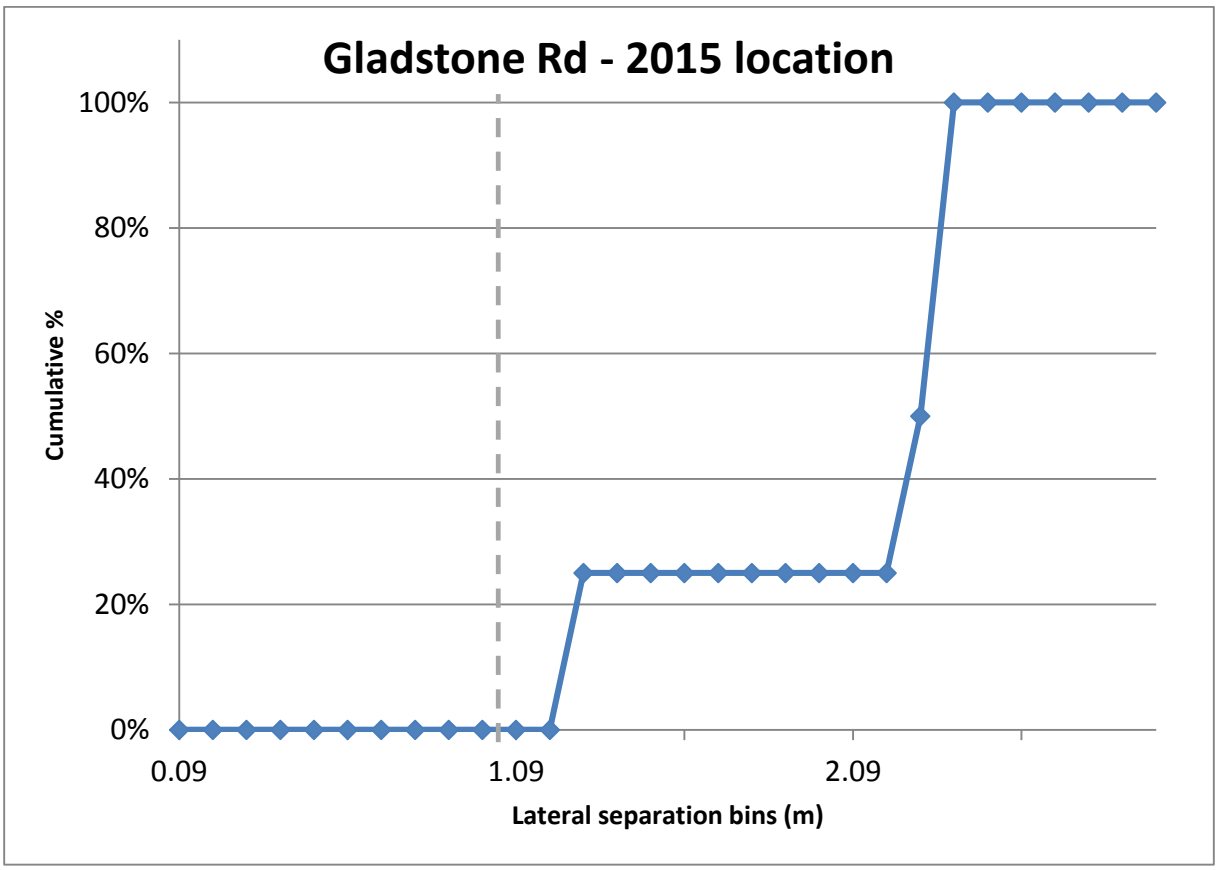
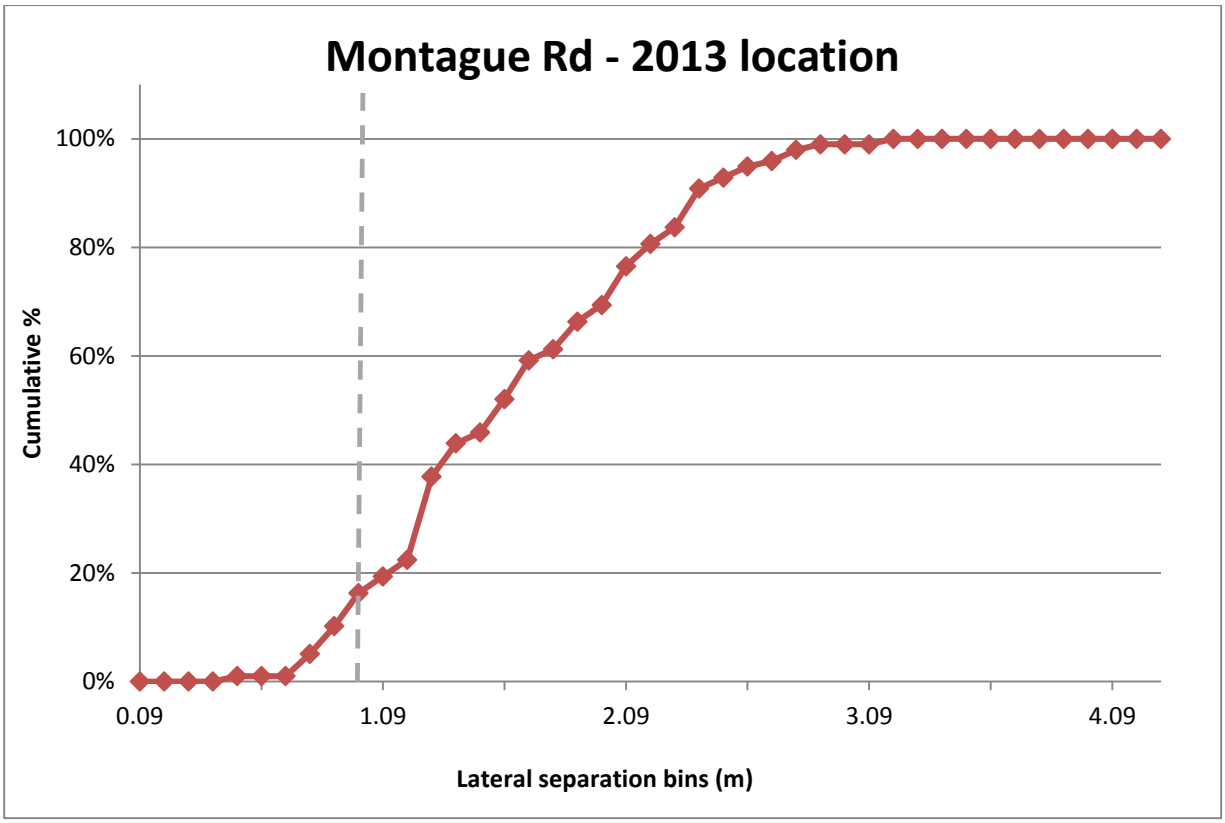
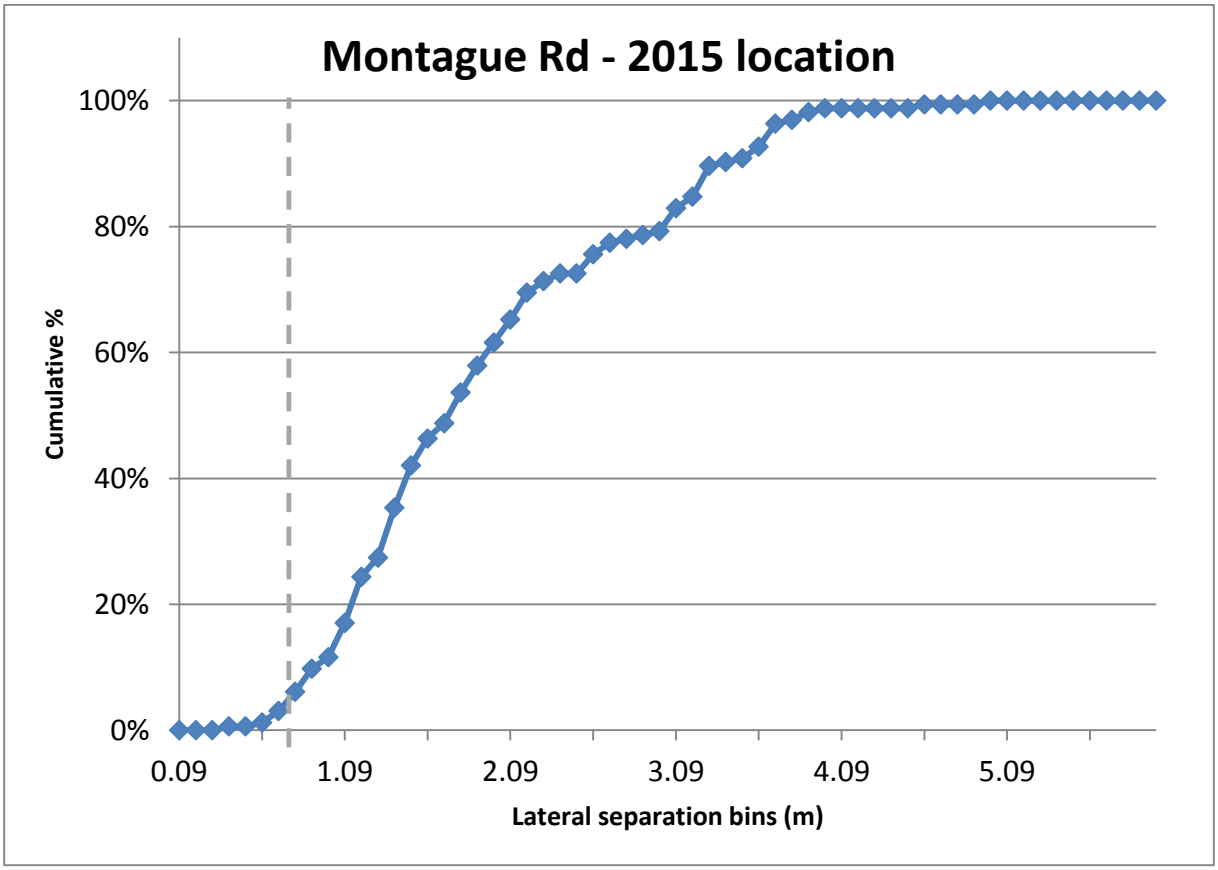
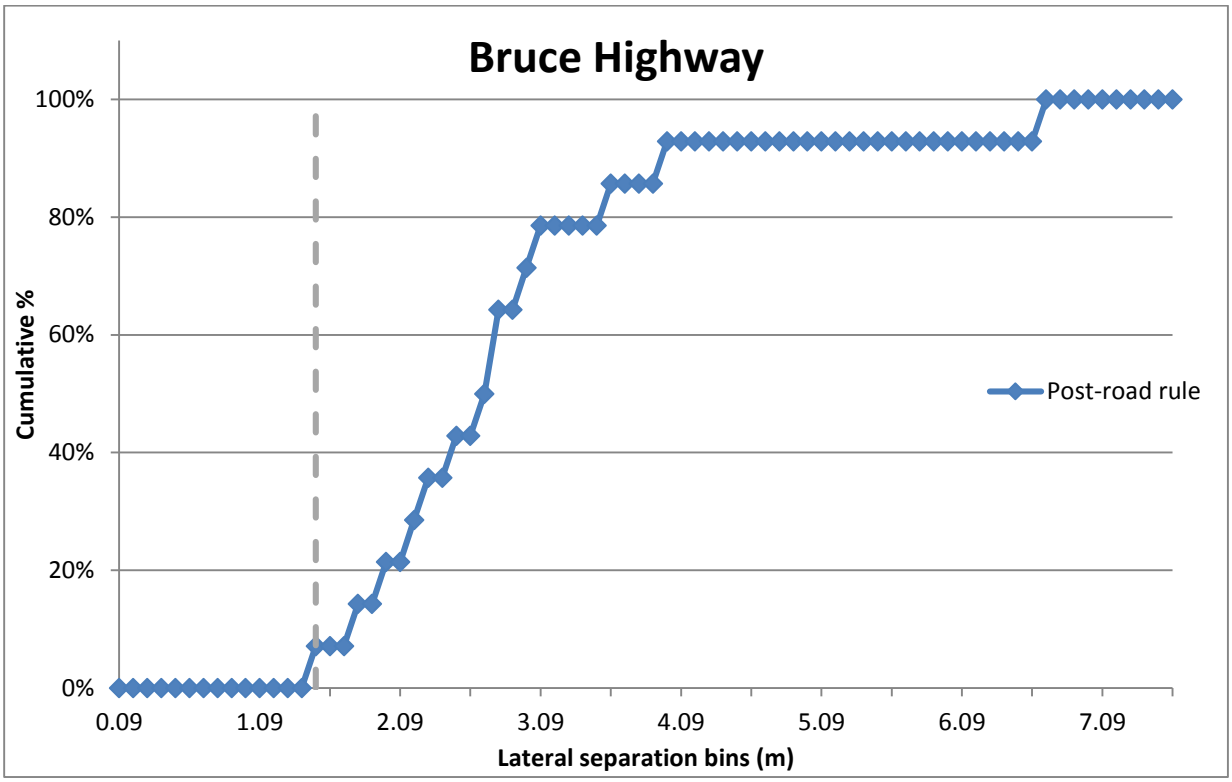
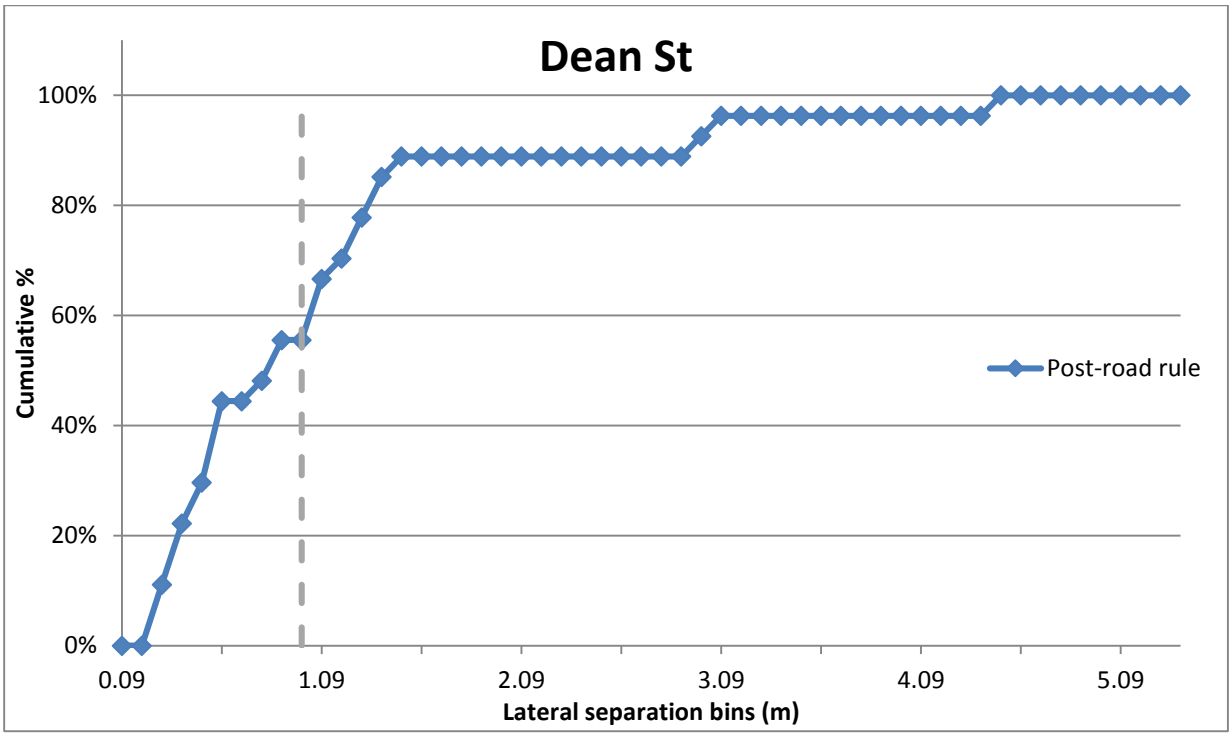
2.09
3.09
4.09
5.09
6.09
7.09
8.09
9.09
Lateral separation bins (m)

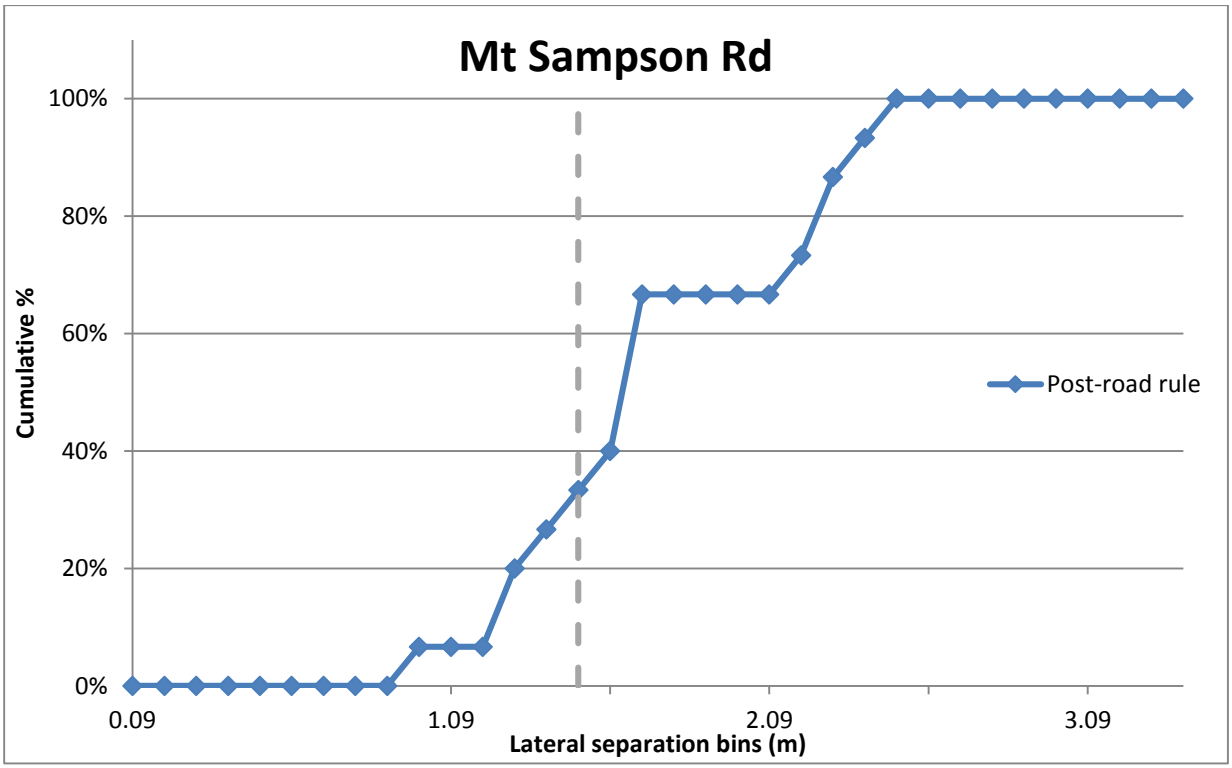

Gladstone Rd - 2015 location
100%
80%
60%
40%
20%
0%
Cumulative %
0.09
1.09
2.09
Lateral separation bins (m)

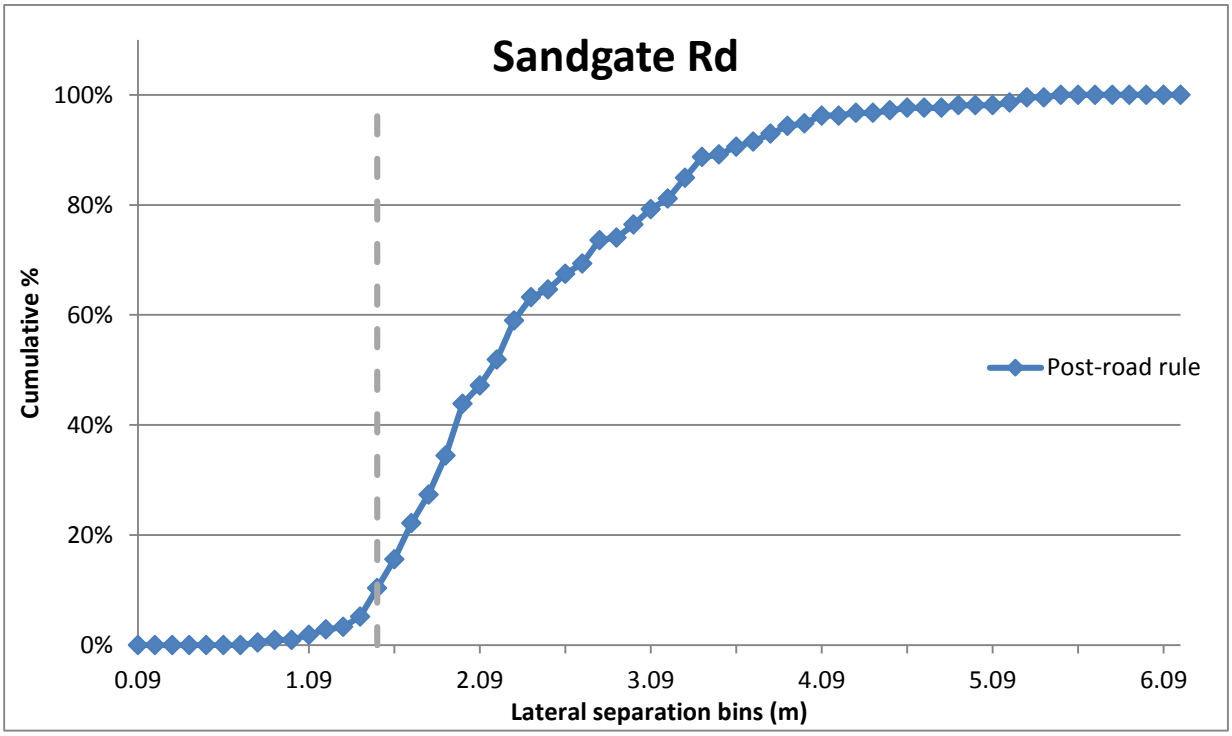

Montague Rd - 2013 location
100%
80%
60%
40%
20%
0%
Cumulative %
0.09
1.09
2.09
3.09
4.09
Lateral separation bins (m)


Montague Rd - 2015 location
100%
80%
60%
40%
20%
0%
Cumulative %
0.09
1.09
2.09
3.09
4.09
5.09
Lateral separation bins (m)


Bruce Highway
100%
80%
60%
40%
20%
0%
Cumulative %
0.09
1.09
2.09
3.09
4.09
5.09
6.09
7.09
Lateral separation bins (m)
Post-road rule


Dean St
100%
80%
60%
40%
20%
0%
Cumulative %
0.09
1.09
2.09
3.09
4.09
5.09
Lateral separation bins (m)
Post-road rule


Mt Sampson Rd
100%
80%
60%
40%
20%
0%
Cumulative %
0.09
1.09
2.09
3.09
Lateral separation bins (m)
Post-road rule


Sandgate Rd
100%
80%
60%
40%
20%
0%
Cumulative %
0.09
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2.09
3.09
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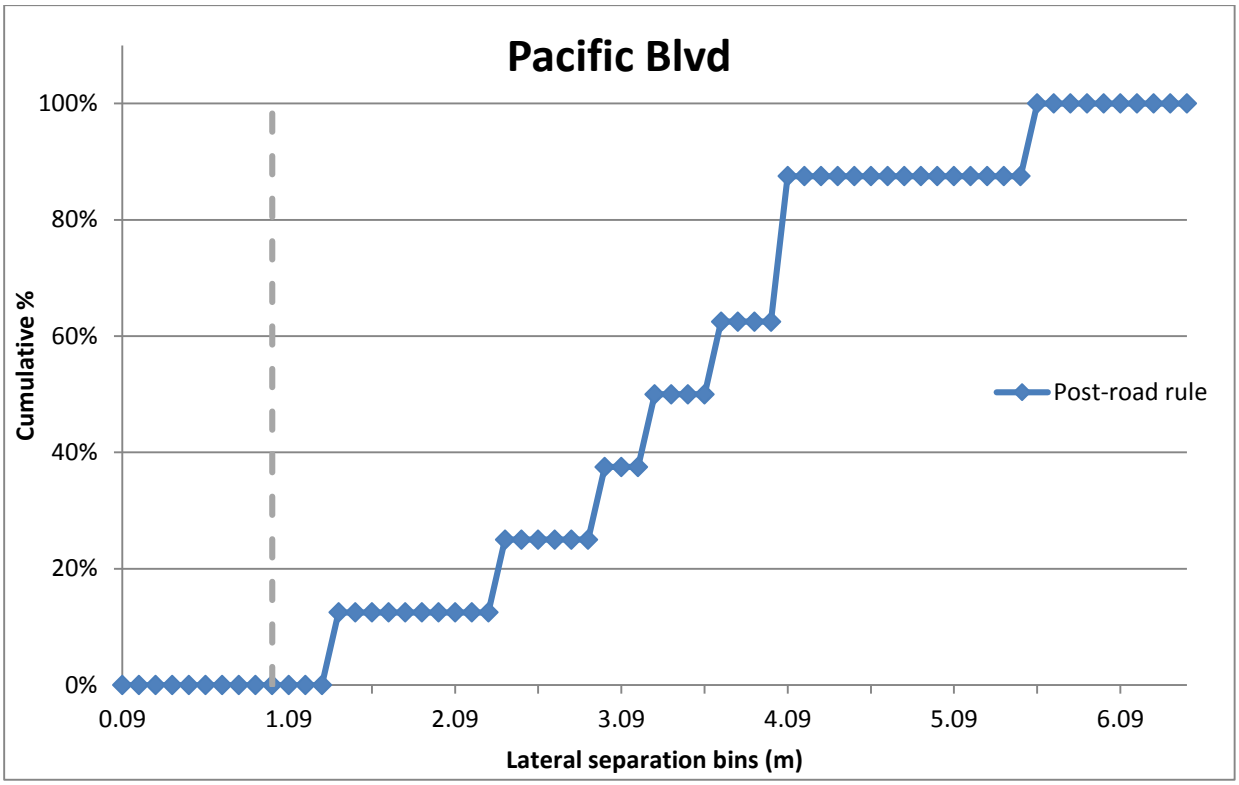
5.09
6.09
Lateral separation bins (m)
Post-road rule


Pacific Blvd
100%
80%
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40%
20%
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Cumulative %
0.09
1.09
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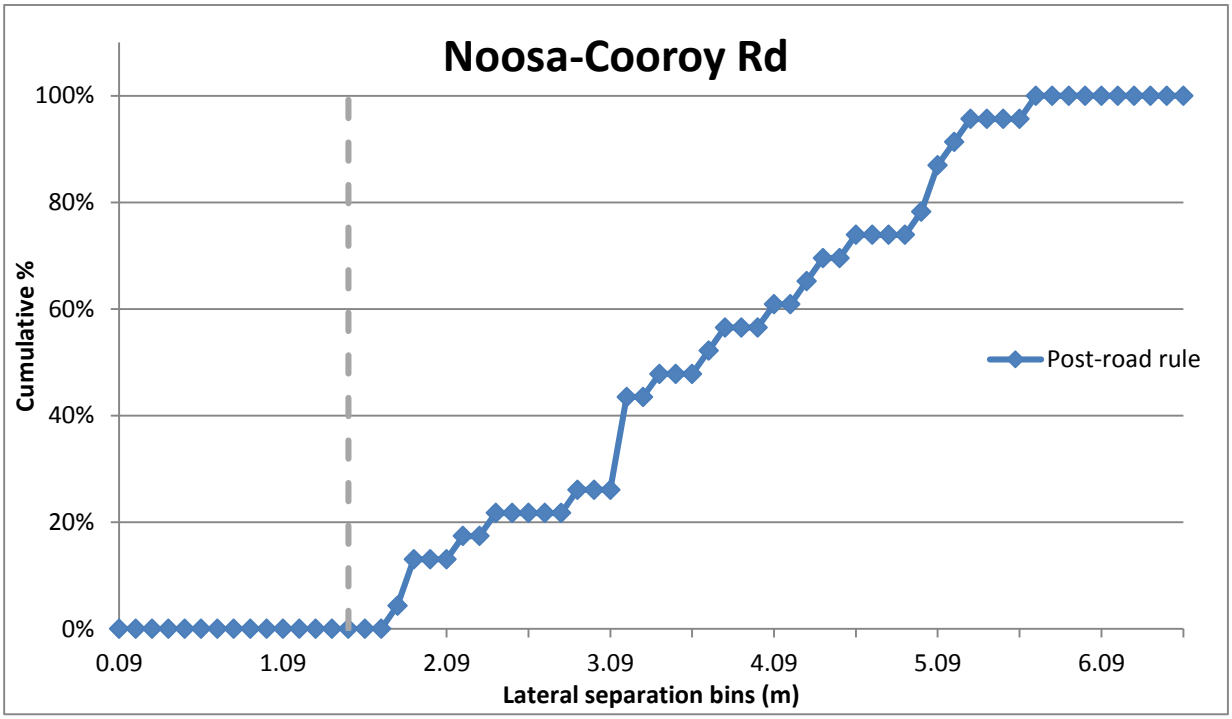
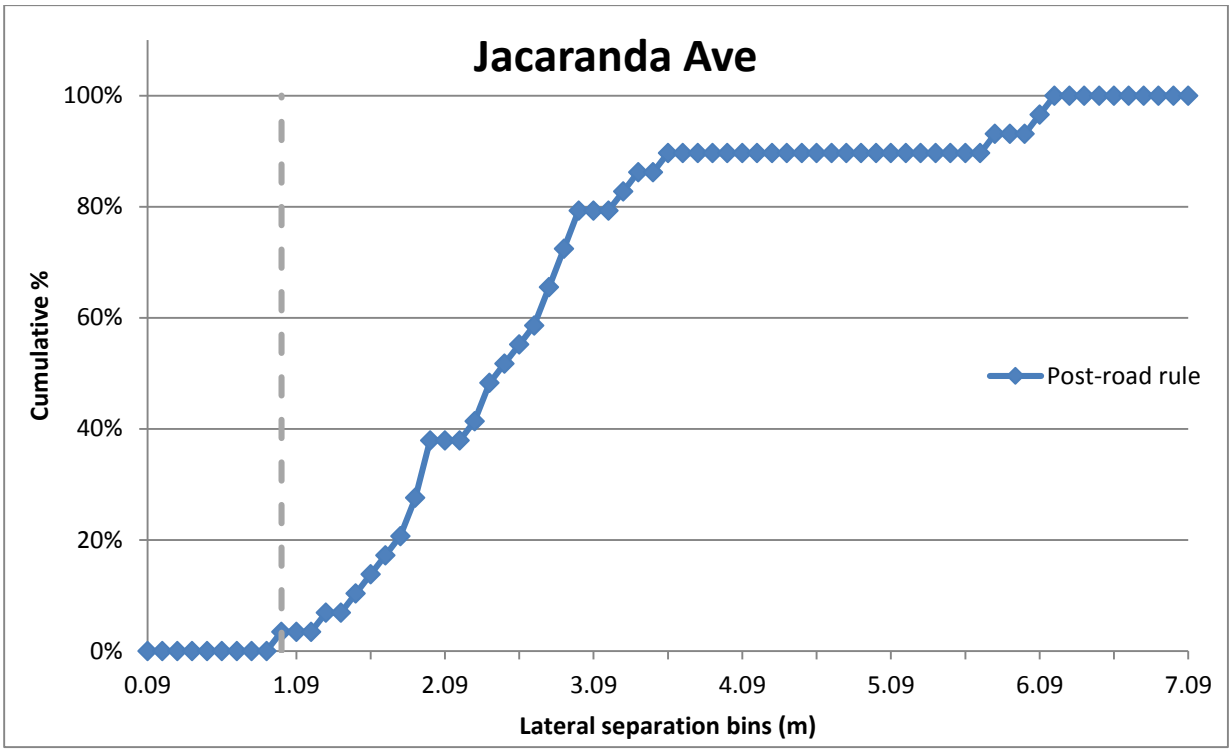
4.09
5.09
6.09
Lateral separation bins (m)
Post-road rule


Noosa-Cooroy Rd
100%
80%
60%
40%
20%
0%
Cumulative %
0.09
1.09
2.09
3.09
4.09
5.09
6.09
Lateral separation bins (m)
Post-road rule


Jacaranda Ave
100%
80%
60%
40%
20%
0%
Cumulative %
0.09
1.09
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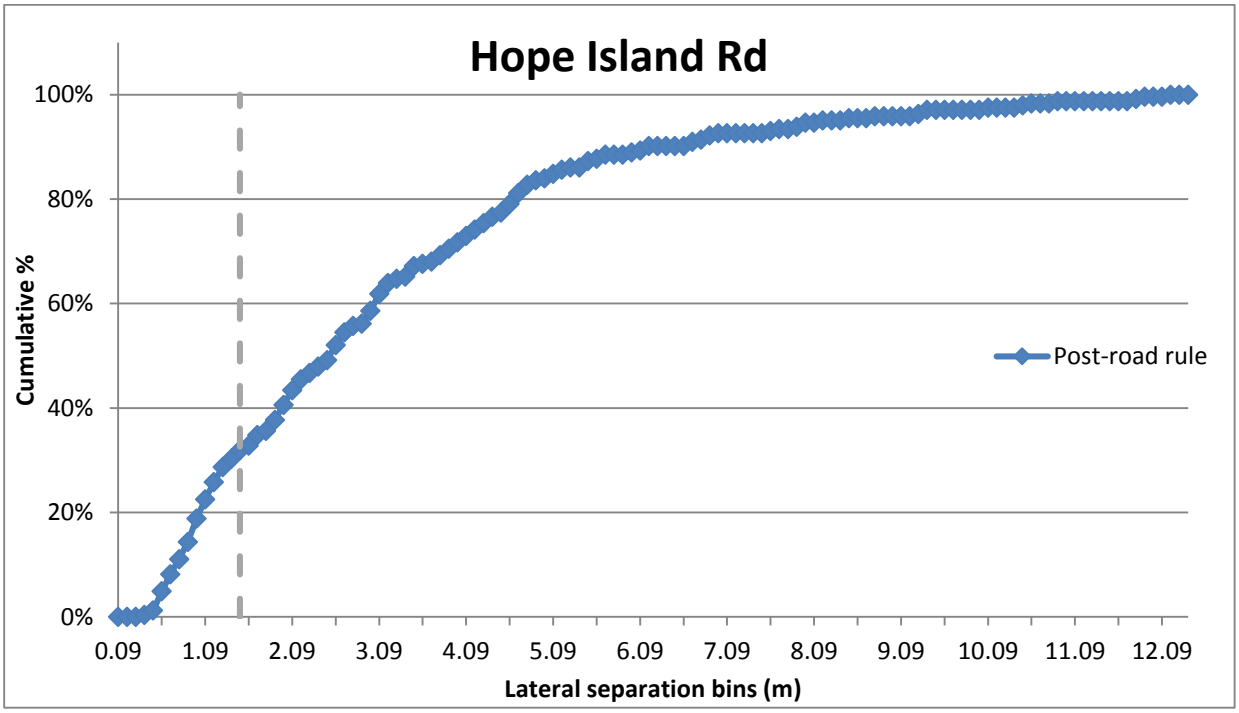
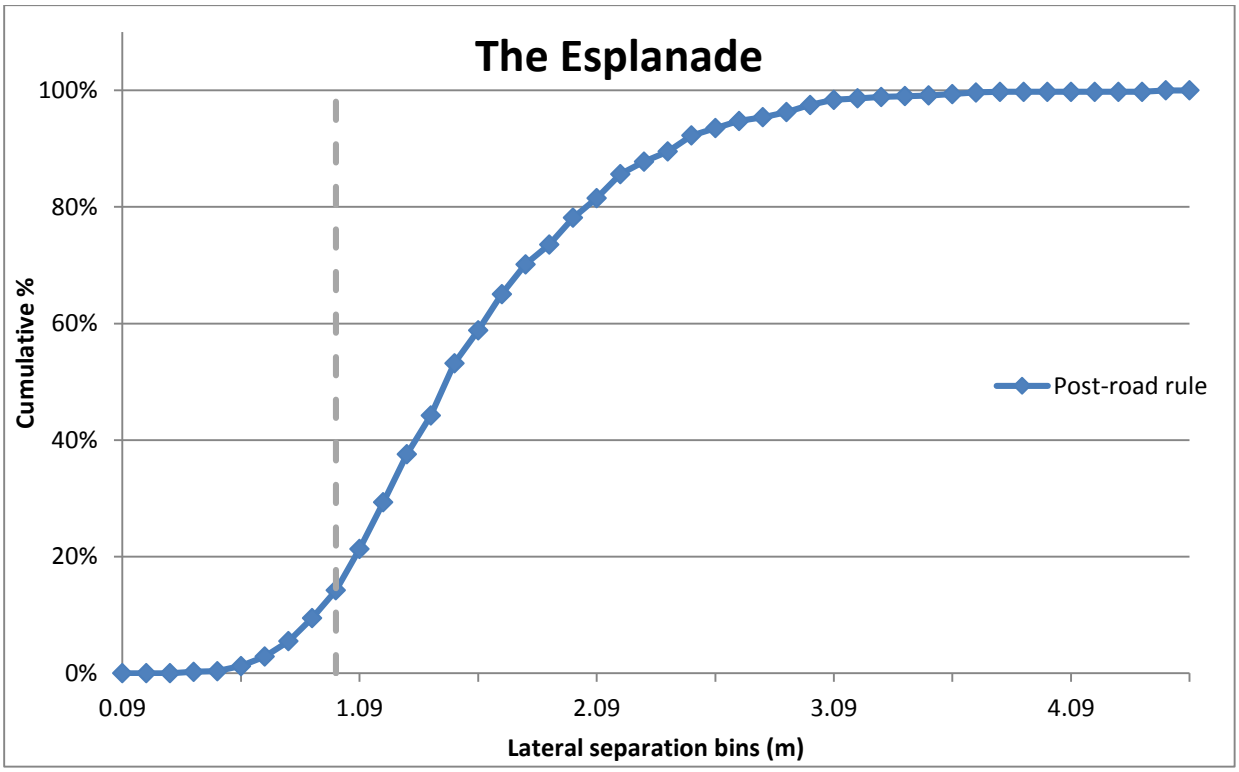
4.09
5.09
6.09
7.09
Lateral separation bins (m)
Post-road rule


Hope Island Rd
100%
80%
60%
40%
20%
0%
Cumulative %
0.09
1.09
2.09
3.09
4.09
5.09
6.09
7.09
8.09
9.09
10.09
11.09
12.09
Lateral separation bins (m)
Post-road rule


The Esplanade
100%
80%
60%
40%
20%
0%
Cumulative %
0.09
1.09
2.09
3.09
4.09
Lateral separation bins (m)
Post-road rule