

TMR5917 DEVELOPMENT AND TRIAL OF ROAD SAFETY COUNTERMEASURES FOR INTERNATIONAL VISITORS TO QUEENSLAND

Literature Review and Stage 1 Analysis



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Angela Watson
Bonnie Ho
Ioni Lewis
Chris Watling
Ross Blackman
Sherrie-Anne Kaye
Barry Watson



*The Centre for Accident Research & Road Safety– Queensland
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1 Literature Review

1.1 Relevance of international visitors to road safety

In Australia, injuries and fatalities among international visitors have attracted limited attention, owing to relatively small numbers of visitor deaths that have historically been recorded on Australian roads (Ellis, 1999; Wilks & Pendergast, 2011; Wilks, Watson, & Faulks, 1999). During 1996-1999, international licence holders represented only 0.7% of the total number of motor vehicle controllers involved in fatal road crashes within Australia (Watson, Tunnicliff, Manderson, & O'Connor, 2004). In absolute terms, the involvement of international visitors in road crashes does not appear to be a large problem. In addition, driving is often perceived to be a lower risk activity compared to other relatively 'unfamiliar' activities for tourists (e.g., water sports), given that most people are already 'familiar' with driving in their home country (Wilks & Pendergast, 2011). The perception that risks associated with driving are 'obvious', in conjunction with the small numbers of international visitor road fatalities, appears to have resulted in limited initiatives to educate and warn international visitors about the risks of driving in an unfamiliar environment (Wilks & Pendergast, 2011). Indeed, a review of literature suggests limited research on road safety in the context of international visitors.

There are several compelling reasons why the safety of international visitors is a concern to be addressed. First, research shows an increase in the numbers of international visitors to Australia, reaching 7.7 million during the year ending March 2017, which represents a 9.0% (or 650,000) increase from the previous year (Tourism Research Australia, 2017). A similar increasing trend is reflected across all Australian States and Territories, excluding Northern Territory (Tourism Research Australia, 2017). In Queensland, during the year ending 2016, international visitor numbers increased 10.0%, highlighting that Queensland remains a popular tourist destination (Tourism and Events Queensland, 2017). Across many of the State's tourist regions, increases in visitor numbers have been reported (Tourism and Events Queensland, 2017). Further increases in international visitor numbers to Queensland are anticipated in the near future, owing to events such as the Commonwealth Games in 2018. The potential road safety implications associated with such increases in international visitors are notable, with tourism data indicating driving as the most popular type of transportation among international visitors (Tourism and Events Queensland, 2012).

From a tourism perspective, it is important that Queensland is portrayed as an attractive destination, and a host country that actively protects the safety of its visitors. Contrary to the illusion that driving a motor vehicle is less risky than other tourist activities, motor vehicle crashes are consistently identified as the most common cause of injury and fatality for international visitors worldwide (Leggat & Wilks, 2009; Wilks & Davis, 2003; Wilks, Watson, & Faulks, 1999). Wilks and Davis (2003) conducted an analysis using Australian Bureau of Statistics (ABS) data on 1,513 tourist deaths during the period 1997-2000 and found that 20.0% of all tourist deaths were caused by 'accidents', with the most frequent type involving land transport. Car crashes were the most frequent cause of land transport incidents (involving 97 fatalities), followed by pedestrian deaths (19), cyclists (9), motorcyclists (6), and passengers of vans or pickup trucks (6), and passengers travelling on bus (4). The study also found that English, American, Japanese and German visitors had the highest rate of fatalities associated with crashes. Subsequently, Dickson and Hurrell (2008) followed up on Wilks et al.'s (2003) study and examined ABS data on international visitor deaths for the period 2003-05 using a comparable research methodology. Again, it was found that land transport was the leading cause of unintentional death (accounting for 9.2% of all unintentional deaths). Using coronial data for 2003-05, the study further revealed that younger visitors were most frequently involved in road

crashes, with people aged 10-19 years accounting for 47.0% of visitor road fatalities, followed by young people aged between 20-29 years (35.0%). Overall, males were more likely to be involved in a crash than females.

International visitors experience a higher risk of being killed on an Australian road than resident road users (Ellis, 1999). Research undertaken by the former Federal Office of Road Safety (FORS) estimated that, based on international visitor numbers, the fatality rate for international visitors was 22.0 per 100,000 persons in 1994, compared with 10.8 for resident road users (Federal Office of Road Safety, 1999).¹ In other words, of all road users, international visitors were twice as likely as Australian residents to die from a road crash (Federal Office of Road Safety, 1999). In a more recent study, Watson et al. (2004) compared crashes between international and resident Australian drivers, and found that a greater proportion of international licence holders died (49.0% vs. 44.0%) or were hospitalised (20.0% vs. 11.0%). Of interest, during this period (i.e., 1996-1999), fatalities resulting from road crashes were not evenly distributed across the country. The most fatalities involving international licence holders occurred in Queensland (28.0%), followed by Western Australia (23.0%) and Northern Territory (18.0%). More recent figures for the period 1998-2002 revealed international visitors represented over 13.0% of road fatalities (Watson et al., 2004).

In addition to fatalities, Wilks and Coory (2002) found that road crashes were the most frequent cause of serious injury among international visitors admitted to Queensland hospitals during the period 1996-2000. Of the 2,598 serious tourist injuries recorded, those caused by motor vehicle crashes made up 21.8% of the total injuries. During the period 2002-2005, 6,578 hospital admissions were recorded for international visitors in Australia. Of interest, visitors between 20 and 29 years old accounted for almost half (47.0%) of the transport-related hospital admissions (Dickson & Hurrell, 2008).

Outside of Australia, some studies have similarly focused on international visitors and their risk of crashing. For example, in the USA, investigations of international and domestic drivers in national parks found factors such as scenery distractions, and a lack of familiarity with the road, local driving rules and the vehicle design to be associated with injuries and fatalities in road crashes (Heggie & Heggie, 2004; Heggie, Heggie, & Kliwer, 2008). In New Zealand, Page and Meyer (1996) found that of the 52 visiting drivers involved in road fatalities during the period 1988-93, almost 20.0% of fatalities were caused by drivers not keeping left.

Recently, the Ministry of Transport in New Zealand conducted research on international drivers' crash involvement during the period 2011-2015. It was found that a greater proportion of international drivers (6.0%) were involved in fatal and injury crashes, compared to the total number of drivers (4.0%) (Ministry of Transport, 2016). The study also found that, where an international licence holding driver had been deemed at-fault for a crash, approximately 30.0% of such crashes were attributed to the driver having failed to comply with New Zealand road rules and conditions. For fatal crashes involving an at-fault international driver, this figure rose to 46.0%. Compared to resident drivers, international licence holders involved in crashes were more likely to have driven on the wrong side of the road (with 7.0% of drivers from right-hand side driving jurisdictions, and 4.0% from the left-hand side). There appeared to be a stronger seasonal variation in terms of crashes involving international drivers than for resident drivers, with half of all the visitor crashes occurring during December to March. The top six country of origin recorded for international drivers involved in crashes were (in descending order): Australia, Germany, China, India, the UK and the USA.

¹ Owing to changes to coding practices used for the Fatal File data, it is difficult to assess more recent trends in total international visitor deaths (Watson et al., 2004).

Of the research that has been conducted to examine international visitors' involvement in road crashes, some researchers have noted issues with the completeness and compatibility of data available for analysis, since transport authorities tended to base their data collection on the international licence status of a driver or rider (e.g., Watson et al., 2004). As a consequence, the full extent of road injuries experienced by international visitors may possibly be underestimated. For example, if international visitors were involved in a crash as a pedestrian, passenger or cyclist, their involvement would not be included in the post-crash statistics.

In sum, there is an increase in the numbers of international visitors and tourism trends to Australia (and Queensland in particular), their likelihood of encountering road injury and fatality appears to be greater when compared to local road users, and the extent of international visitors' involvement in crashes appears to be underestimated owing to challenges in data collection methodologies. It is important, therefore, to achieve a more in-depth understanding about factors that contribute to crashes involving international visitors so that such information may be used to inform the development of effective targeted countermeasures.

1.1.1 Factors contributing to crashes involving international visitors

1.1.1.1 Risk behaviours

A review of the available literature reveals that, in terms of risk behaviours, the most prominent risk behaviour that differentiates between international and resident drivers is the use of seat belts (Ellis, 1999). While it is the law to use seat belts and child restraints in Australia, it may not be the case in other countries (e.g., India). Approximately half (52.0%) of the international drivers who were killed in a car crash were not restrained by a seat belt, compared to 38.0% of local drivers (Ellis, 1999).

Speeding still contributes and is a major contributing factor to crashes, but relative to serious and/or fatal crashes involving non-international drivers, speeding appears to be a relatively smaller contributing factor (Watson et al., 2004). On average, 81.0% of issued infringement notices involve speeding. Despite speeding being the most common type of offense committed by international visitors, it was found to be more common in total fatal crashes (42.0%) than those fatal crashes involving international drivers (19.0%) (Watson et al., 2004).

Similarly, drink driving does not seem to be a major factor associated with international visitors' involvement in road crashes in Australia (Watson et al., 2004; Wilks & Watson, 1998, 2000; Wilks, Watson, & Faulks, 1999). There appears to be very few incidents of alcohol intoxication reported for international visitors in police infringement investigations across Australia, which suggests that visitors generally comply with the law in this area (Watson et al., 2004). In contrast to Australian findings, Petridou, Askitopoulou, Vourvahakis, Skalkidis, and Trichopoulos (1997) conducted a study in Greece, and found drink driving to be a leading cause of road crashes in a significantly higher proportion of international visitors from Eastern European countries, compared to resident drivers. The combination of several factors can potentially account for this difference between Australia and Greece regarding drink driving road crashes. Wine, and to a lesser extent, beer drinking is thoroughly integrated in everyday life in Greece (Moore, 1995) and Greece has fairly strong wine-related tourism as well (Hall, Sharples, Cambourne, & Macionis, 2009). Together, such features suggest that there is a greater opportunity for drink driving to occur in Greece. When coupled with the common phenomenon of international visitors drinking at atypical levels than they would at home (Bellis, Hughes, Dillon, Copeland, & Gates, 2007; Ryan, 1991; Tutenges & Hesse, 2008) as well as considering the well-established and extensive levels of drink driving enforcement that creates a strong general deterrent effect in Australia (Watson, Leal, & Soole, 2013), such factors potentially explain the disparate drink driving findings between Greece and Australia international visitors.

Fatigue has also been referred to in the available evidence but has been mentioned in association with aspects relating to the driving context and, thus, in this review, further note about fatigue is discussed under Section 1.1.1.2.1 "Familiarity with the side of the road".

1.1.1.2 *Driving in an unfamiliar environment*

A number of studies suggest that international visitors often come from driving conditions that are different to that of Australia (e.g., Watson et al., 2004; Wilks & Watson, 1998; Wilks, Watson, & Faulks, 1999; Wu, 2015). Among the potential differences are: the side of the road on which traffic drives; familiarity of the vehicle and the side of the vehicle in which an international visitor drives; road networks and road rules; and, other environmental factors such as use of language and time differences.

1.1.1.2.1 Familiarity with the side of the road

One of the contributing factors to international visitors' involvement in road crashes is the requirement to drive on the opposite side of the road to that which is familiar. In an Australian study, Wilks and Watson (2000) analysed international driver crashes using six years (1993-98) of road crash data provided by Queensland Transport. A comparison was made between international and resident Australian drivers involved in serious casualty crashes (i.e., those involving fatality or hospitalisation). The study revealed significant factors that contributed to crashes involving international drivers were 'failure to keep left' and 'fatigue'. Visiting drivers were also significantly more likely than their Australian counterparts to be involved in a serious 'head-on' crash, the type of crash that is often a result of driving on the opposite of the road. Further, international visitors from right-hand side driving jurisdictions were more likely to be involved in a head-on crash, when compared with visitors from left-hand side driving jurisdictions.

There is some international evidence that supports the notion that driving on the opposite of the road is a contributing factor to road crashes involving international visitors. In New Zealand, Page and Meyer (1996) found that 52 international drivers were involved in fatal crashes during the years 1988-93; with nearly 20.0% of these crashes caused by drivers not keeping to the left (i.e., correct) side of the road. In Greece, a country where vehicles travel on the right-hand side of the road, Petridou et al. (1997) found that international drivers from a left-hand side driving jurisdiction were involved 2.5 times more frequently in vehicle crashes, when compared to visitors from a right-hand side driving jurisdiction.

Researchers (e.g., Petridou et al., 1997; Wilks & Watson, 2000) have theorised that crashes occur among visitors from the opposite-side driving jurisdictions because actions such as overtaking, or other driving manoeuvres, require reflexes to be conditioned on reverse directionality. Crashes may, in effect, occur when drivers have not sufficiently acclimatised to the unfamiliar driving direction of the country they are visiting. Another theory is that, as a consequence of fatigue, international drivers may fall asleep at the wheel and wake with a start, automatically reverting to the wrong (albeit more familiar) side of the road and, ultimately, resulting in a head-on crash with an oncoming vehicle.

1.1.1.2.2 Familiarity with the vehicle design

The driving of unfamiliar vehicles is also a contributing factor to international visitors' involvement in road crashes. In Australian rural and remote areas, the overturning of a vehicle is the most common type of crash responsible for serious injuries involving international visitors (Watson et al., 2004). The issue of overturning is particularly common in four-wheel-drive vehicles, as they have a higher centre of gravity compared to the more familiar and common sedan (Wilks & Pendergast, 2011). Aside from four-wheel-drive vehicles, recreational vehicles such as campervans or camper trailers may also pose similar concerns. In a recent qualitative study, Wu (2015) offers some insight into

safety concerns reported by Chinese outbound tourists to Australian destinations. In their study, Wu (2015) analysed 37 travel blogs written by Chinese tourists. More than half of these Chinese tourists reported concerns relating to the size of their recreational vehicle. For example, some found the steering wheel large and difficult to control, while others experienced difficulties when driving the large vehicle in winding roads, especially when coupled with strong wind. Issues such as different vehicle layout and functions were also reported as a common cause for mistakes made on the road (e.g., a lack of familiarity with controls for the wipers and indicators as a source of distraction).

In leisure travel, motorcycles and mopeds are also often hired by international visitors who are unfamiliar with driving such vehicles. In a study over a 6-month period in 1988, Purkiss (1990) reported on 926 patients presented at a hospital emergency department in Bermuda following a motorcycle or moped crash, and found 48.0% of these crashes involved tourists. In another study, Carey and Aitken (1996) identified that motorcycle crashes among tourists to Bermuda were 5.7 times higher, when compared to resident drivers. It is therefore important that initiatives are in place to support visitors in familiarising them with the new, different and/or rental vehicles that they may be operating.

Blackman and Haworth (2013) conducted a study in Queensland on moped crash and registration data during the five-year period of July 2003 to June 2008. The study found approximately 10% of the crashes involved a rider with an overseas (5.1%) and interstate licence (4.7%). While there were no fatalities, 56% international visitors and 52% interstate riders involved in crashes were hospitalised. There appeared to be an overrepresentation of rental mopeds in the crash data, given only 2.7% of mopeds are registered for rental in Queensland. Further, it was reported that of the tourist moped riders who were involved in a crash, they were more likely to be younger and female. The study noted that Queensland is a jurisdiction that permits car licence holders to ride mopeds, hence enabling mopeds to be widely accessible to tourists; including those who have little or no experience (or knowledge) in riding such a vehicle. As a countermeasure, Blackman and Haworth (2013) suggested that more stringent licensing requirements be introduced, and that moped rental operators be engaged to ensure driving competence and familiarity with the vehicle controls prior to allowing mopeds to be rented by tourists. Further, the study recommended that moped use be recognised and included as an adventure tourism activity, so as to encourage more effective risk management and client safety protection among moped rental companies.

1.1.1.2.3 Other road safety concerns for international visitors to Australia

Other risk factors that may contribute to international visitors' involvement in road crashes are further discussed in Wu's (2015) study of travel blogs. These risk factors appear to not have been previously identified by retrospective studies that analysed post-crash statistical data; rather they were road safety concerns reported by Chinese travellers while driving a recreational vehicle in Australia.

One of the reported safety concerns related to driving on unfamiliar roads. Wu (2015) reported that Chinese visitors tended to encounter complex roads and traffic jams in major cities (e.g., Sydney, Melbourne and Brisbane), and were unfamiliar with managing the hazards associated with busy city traffic. The different highway system in Australia was also reported to present them with challenges (e.g., Chinese visitors were required to drive at slower speed limits than to which they were familiar with in their home country). A failure to consider the differences was reported by Chinese visitors to have led to poor itinerary plans, which in effect resulted in speeding, stress, and driver fatigue. In suburban, rural and remote areas, rules for driving at roundabouts, as well as mistakes that have been made, were also frequently discussed between bloggers and would-be travellers. Many also highlighted risks in relation to the height of their vehicles in unfamiliar winding roads, particularly in strong wind conditions. Open roads with similar landscapes were identified as a risk factor that was

associated with mindlessness and driver fatigue, while wildlife and domestic animals were perceived as a threat to Chinese visitors who had not expected wildlife on the road. Several Chinese visitors had reported strong sun glare as a safety concern when travelling west in the evening. Finally, the many technology dead zones in remote regions were considered a risk factor, as visiting drivers who depend on their smartphones or tablets for navigation may experience disorientation in the absence of the guidance provided by these devices.

Aside from driving on unfamiliar roads, other personal factors, such as driver experience, language comprehension skills, and driver fatigue were reported as safety concerns for Chinese visitors to Australia. While some Chinese visitors may be experienced drivers in their home country, they may have never driven long distances on unfamiliar mountainous roads. Other visitors may not be confident or experienced drivers, and were therefore less skilled at identifying unfamiliar road hazards. Driver fatigue was a concern in situations where the same person drove for the entire trip, and/or where the driver experienced jet lag and disorientation (owing to the change of sunshine direction). The understanding of English-based road signs was also raised as a criterion for a safe journey; hence a higher level of competency in the destination country's language was identified to enhance road safety among visitors.

1.1.1.2.4 Familiarity with side of the vehicle

Another major contributing factor to international drivers' involvement in road crashes is the problem of disorientation. Orientation is the issue of driving from the opposite side of the car to that which is familiar, which may involve the adjustment of spatial perception and coordination (Wilks & Pendergast, 2011). Crashes associated with a driver's disorientation with the vehicle are often represented by 'angle' (a crash that often results from a turn), 'head-on' and 'sideswipe' crashes (Wilks, Watson, Johnston, & Hansen, 1999). In Australia, the problem of disorientation appears to be particularly acute among international drivers from right-side driving countries (Watson, Wilks, Hansen, & Johnston, 1999). In Queensland, for example, Watson et al. (2004) found in data during the period 1999-2002 that the two most common types of serious casualty crashes involving an international driver were angle (22.0%) and head-on crashes (21.0%, but 31.0% of fatal crashes).

Of note, disorientation may also be a contributing factor in crashes involving international visitors as pedestrians, when visitors may look in the wrong direction before crossing the road (Wilks & Pendergast, 2011). In recognition of disorientation as a contributing factor in pedestrian injury and fatality, the words 'Look Right' are painted in large letters at the kerbsides of major crossings in the United Kingdom (Baldwin, Harris, & Davies, 2008; Wilks & Pendergast, 2011).

1.2 Countermeasures for preventing international visitors' involvement in road crashes

1.2.1 Literature on countermeasures

There appears to be limited studies on countermeasures that have been employed to protect the safety of international visitors on the road. One study does, however, provide some insights on coping strategies used by international drivers. As mentioned previously, Wu (2015) conducted a study on a selection of well-read travel blogs composed by Chinese tourists, who had reflected on their driving experience in Australia. Within their blogs, Chinese travellers not only reported their safety concerns while driving, but also shared their learnings and techniques they had employed to address their safety concerns. These coping strategies may serve as an effective form of countermeasure against international visitors' involvement in road safety, as travellers may often depend on advice from other fellow travellers; and information from fellow travellers may have a stronger impact than any other source (Obst, Brayley, & King, 2008).

According to Wu (2015), travel bloggers often encouraged would-be travellers to learn and comply with Australian driving rules, invest time in planning for the journey, familiarise themselves with the rental vehicle they were intending to use, and adopt other general techniques (Figure 1).

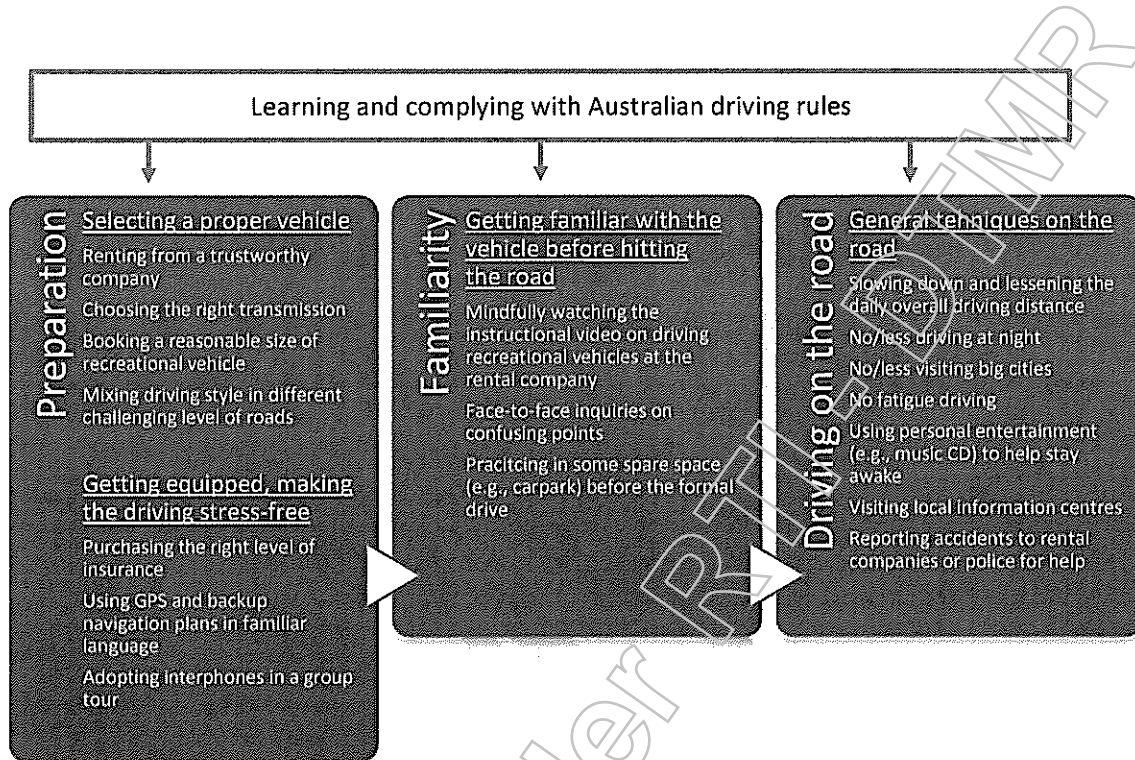


Figure 1. Road safety coping techniques of Chinese RV users in Australia (Wu, 2015, p. 809)

To cope with challenges arising from unfamiliar road rules, most blog posts suggested that visitors intending to drive in Australia should learn and obey local road rules throughout their travels. Some blog posts discussed road rules such as left-hand driving, getting through roundabouts, speed limits, changing lanes, encountering road works, tollways, and safety belts. Bloggers also suggested for would-be travellers to begin their learning through reading information offered on Australian transport departments' websites and packages sent by rental companies.

As part of preparing for a safe trip, the travel blogs provided a variety of advice to would-be travellers in terms of selecting the right vehicle, such as renting from a more expensive (but trustworthy) company as opposed to using a cheaper one, and purchasing roadside assistance insurance in addition to the usual comprehensive car insurance. To increase their familiarity with the rental vehicle, the travel bloggers highlighted three coping strategies that could be undertaken. First, they indicated that would-be travellers could watch a tutorial video offered in the rental premises and request for interpretation in their native language (i.e., Mandarin) if available. Second, pay attention to the face-to-face instructions offered by staff at the rental company, and take the opportunity to make inquiries about the vehicle. Third, practise driving the unfamiliar vehicle in open spaces (parking lots) prior to driving on the road.

The Chinese travel bloggers also discussed general coping techniques, including strategies to manage driver fatigue. These strategies comprised itineraries that allow time to recover from jet lag and entertainment activities (i.e., listening to music, social interaction) during the drive to sustain the

driver's alertness when driving long-distances on open roads with similar landscapes. However, highlighting the need to ensure the credibility of the information that international visitors are referring to, it is important to note that despite the latter recommendation as a potential strategy, current research suggests listening to music and social interaction has little effect for reducing fatigue/sleepiness. Collectively, such aspects highlight a need for increased education regarding the use of effective fatigue/sleepiness countermeasures (Watling, Armstrong, & Radun, 2015).

1.2.2 Countermeasures currently available to international visitors

On the Internet, a variety of information is available to international visitors who plan to drive in Australia. These sources of information are typically provided by government transport departments, police, insurance companies, immigration consultant companies, travel agencies, travel blogs, and the news. Information provided generally relate to driving with an overseas licence, Australian road rules, and website links that direct international visitors to road rules relevant to each State and Territory (Table 1).

Table 1. Examples of road safety online resources available to international visitors intending to drive in Australia

Source	Description	Website
Progress Car Insurance website	<ul style="list-style-type: none"> Tips for US and European drivers wanting to drive a car in Australia, including stay left, use of foreign licences, strict rules and potential to lose driving privileges, seat belt and child restraint requirements, strict mobile or cell phone use, drink driving, obligations in the event of an accident, speed limits, overtake on the right/stay left, roundabouts, toll roads, outer roads (and the outback) and dangerous roads in Australia, fuelling up your car Links directed international visitors to specific road tips and law for each State and Territory in Australia 	http://www.progressiveonline.com.au/driving-in-australia.aspx
Australia.gov.au	<ul style="list-style-type: none"> Provides information about driving with an overseas licence Provides links to individual State and Territory laws for driving with an overseas licence and road rules 	http://www.australia.gov.au/informationand-services/transportand-regional/drivingwith-an-overseaslicence
SBS website	<ul style="list-style-type: none"> Article about how to drive in Australia with an overseas licence Provides information about laws and regulations on the use of foreign driving licences in each State and Territory 	http://www.sbs.com.au/yourlanguage/italian/en/article/2016/01/08/how-driveaustralia-overseaslicence
Source	Description	Website
Travellers Contact Point (immigration consultant company)	<ul style="list-style-type: none"> Offers licence laws advice about driving with a foreign licence specific to each State and Territory 	https://www.travellers.com.au/plan-yourtrip/driving-inaustralia/

<p>Queensland Government website</p>	<ul style="list-style-type: none"> • Informs visitors that they can drive in Queensland if they have a valid overseas licence • Details rules for driving in Queensland using an overseas licence (e.g., only drive the class of motor vehicle authorised on licence, show licence to police office when requested) • Conditions that prevent international visitors from driving in Queensland • Provides a link to information about Queensland road rules • Requirements to carry a recognised English translation if foreign licence is in a language other than English (link a list of approved translators included) 	<p>https://www.qld.gov.au/transport/licensing/driver-licensing/overseas/driving</p>
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Within Australia, there appears to be some attempts at developing initiatives to protect the safety of international drivers. In 2008, a National Visitor Safety Program was implemented as an initiative of all Australian State Tourism Organisations and the Commonwealth Government (Tourism and Events Queensland, 2008). The program aimed to promote safe holiday experiences for international visitors and, as part of the program, information about transport safety was included into the National Visitor Safety Handbook for tourism information providers and the media to use as a 'template' when promoting overall tourist safety. The handbook was written in English and included information regarding some laws and road rules that international visitors need to observe when driving a car or motorcycle (e.g., the use of an overseas licence, wearing belts, mobile phones and driving, drink driving, speed limits, road markings and signs). Information was also provided on roadside assistance and emergency services, driver fatigue, warnings about road trains (i.e., large trucks) and railway crossings. The handbook also provided international visitors with information about road safety in outback and rural areas: for example, how they may prepare for their trip, ensuring they carry spare equipment, road etiquette, driving in extreme weather, wildlife, and road conditions to be expected such as narrow roads and changing surfaces. A 'Travel Safety in Australia' brochure appears to be a subsequent publication available to international visitors and which has been translated into seven languages (i.e., French, German, Italian, Spanish, Japanese, Chinese and Korean)².

A recent road safety resource for international visitors is the mylicence.sa.gov.au website developed by the Government of South Australia (Department of Planning Transport and Infrastructure, 2017). The website comprises a section for people visiting South Australia, and presents road safety information relevant to visitors in a series of brief YouTube videos in eight different languages (i.e., English, French, German, Italian, Spanish, Chinese, Arabic and Dari). The messages relayed in the YouTube clips are also presented in text and accompanying graphics. Specifically, visiting drivers are educated about South Australia's licence laws, keeping left, seatbelts and helmets, signs, speed limits, road markings, alcohol and drugs, no mobile phones, cyclists, driving tired, road conditions, flood roads, driving in rural and remote Australia, animals, road trains, actions to take when their vehicle breaks down, and ways to access emergency assistance. Links were also included to direct visitors to other areas within the website that provide additional resources also relevant to domestic drivers, such as a Hazard Perception Test (HPT). This HPT is an online tool that allows people to

² This brochure provides road safety information as part of overall safety advice for international visitors and can be found in the research and resources section of the Murray Regional Tourism website (<http://www.murrayregionaltourism.com.au/research-resources/crisis-management/national-visitor-safetyprogram/>) (Murray Regional Tourism, 2017).

practise their driving skills and perception of hazards on South Australian roads. In this HPT, video clips of real driving situations are played; drivers respond to these situations by clicking their mouse and feedback is subsequently provided to inform the driver whether a correct action had been taken. Although a link to the HPT was included on the international drivers' page of the website, it appears that the HPT targeted the broader population of drivers requiring practise in identifying road hazards (e.g., drivers on their Learners or P-plates), rather than being tailored to present scenarios specific to international visitors.

Outside of Australia, an internationally recognised road safety program for international visitors has been recently developed in New Zealand, and is intended to be a model to inform the devise of programs in Victoria (Australia) as well as in the UK (Safer Journeys, 2017). The Visiting Driver's Project, a signature programme of New Zealand's road safety strategy to 2020, is developed on the basis of extensive research conducted on the driving patterns of international visitors and their exposure to risk during driving (Safer Journeys, 2017). More specifically, research was conducted to ascertain the following aspects: how rental vehicles were being used by visiting drivers; the journeys undertaken within the project's three regions (of West Coast, Otago and Southland); the relationship between accommodation demand and traffic network demand; overseas visitors' contribution to traffic density in the project regions; the way in which overseas drivers use the road network; and their exposure to risk while driving on these journeys (Safer Journeys, 2017). The program is led by the New Zealand Transport Agency (NZTA) in collaboration with other Transport Agency stakeholders as well as those in the tourism supply chains. Through this partnership approach, the program endeavours to improve safety across all aspects of the road system and to benefit international visitors with educational initiatives in three stages of planning and adjusting before they start driving: (i) planning and booking, (ii) in-flight, and (iii) on arrival to the country (Table 2). Of note, as detailed in Table 2, an online visiting training program was designed specifically for visiting drivers to help them understand New Zealand road rules and typical road conditions that they may experience on their journey.

Table 2. The Visiting Driver's project's partnership approach to preparing international visitors for driving in New Zealand (Safer Journeys, 2017)

Planning stage	Partnership	Interventions
Planning and booking	Tourism New Zealand and tourist operators overseas	Tourist operators overseas are upskilled by Tourism New Zealand and other tourism partners about driving in New Zealand. Information is provided to would-be travellers to establish some expectations for what it is like to drive in New Zealand. This initiative aims to help visitors make safe choices about driving (e.g., setting realistic journey times, arranging a night's accommodation prior hitting the road, and selecting a safe vehicle).
Planning stage	Partnership	Interventions
	Automobile Association (AA)	An online visiting drivers training programme (available in six languages) is available on AA's website. The training programme was designed specifically for overseas drivers. It is an interactive video with 15 scenarios to assess knowledge and understanding of driving in New Zealand. International visitors are provided with a certificate of completion after the online assessment, and are encouraged to present the certificate to their car rental provider to show that they have taken steps to familiarise themselves with driving in New Zealand.

In-flight	Air New Zealand and Tourism New Zealand	A Driving in New Zealand app has been developed by Air New Zealand, and is available to passengers on all long-haul international flight. Videos on driving in New Zealand (including some developed by Tourism New Zealand) are also offered in different languages. This initiative aims to engage international visitors with information about safe driving before they drive.
On arrival	Rental Vehicle Association, Tourism Industry Aotearoa, and rental vehicle operators	The Rental Vehicle Association and Tourism Industry Aotearoa's Code of Practice encourages rental vehicle operators to carry out in a range of activities, including assessing international visitors' readiness to drive in New Zealand, and equipping them with safety resources such as brochures and steering wheel tags that display brief information about safe driving and road rules in New Zealand.
	Accommodation providers	Accommodation providers are encouraged to access the Tourism Industry Aotearoa's toolkit, which provides them with information and resources to have a road safety conversation with visitors.

To protect the safety of visiting drivers during their journey, an education campaign is being implemented currently during the summers of 2016-17 and 2017-18 in the regions of Otago, Southland and the West Coast, targeting international visitors from six countries with the highest crash statistics (i.e., Australia, Germany, China, USA, UK and Canada), as well as domestic visitors from other regions. The education campaign aims to raise awareness among visiting drivers about the differences between the roads in New Zealand and their home country and to encourage visitors to adjust their driving when necessary. Through its partnership approach, the campaign's messages are designed to reach international visitors at the three aforementioned stages of planning and adjusting before they begin driving. Campaign materials comprise road safety messages displayed on billboards, posters, bar coasters, coffee cups, digital advertising and social media. These messages remind visitors to allow for extra time, that the roads in New Zealand are different, to pull over when taking photos, to only overtake in appropriate road conditions, and to drive on the left-hand side of the road.

As part of the program, infrastructure countermeasures are also being implemented. Specifically, engineering improvements are being made to roads and roadsides in the project regions with the aim of preventing crashes and minimising damage should a crash occur. Some of these infrastructure initiatives include the installation of rumble strips, directional arrows, and 'no passing' markings, safety barriers, car park and rest area upgrades, electronic speed indicator signs, and improved signage (e.g., traffic courtesy signs, keep left signs, and ice/grit warning signs). During the summer season, part of the project's initiative ensures visible police presence on key tourist routes to perform roadside checks of rental vehicles, and to help visiting drivers understand various road safety concerns.

In concluding this review of the literature, there has been an increase in the number of international visitors in Queensland in recent times. The extant literature suggests that international visitors are at a greater likelihood of being involved in a road crash when compared to local drivers. Importantly, the crash involvement of international visitors in Queensland has not been thoroughly examined since 2004. Thus, the first stage of the current project was to examine the International Visitors Survey data to determine current trends of international visitors coming to Queensland and to determine the crash involvement and other relevant factors of international visitors from data provided by Transport and Main Roads (TMR) from the Queensland Road Crash Database for the



period 1 January 2003 to 31 December 2016. The next section of this report details results from the aforementioned analysis of data.

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2 Method

2.1 International visitors

Data were retrieved from the International Visitors Survey conducted by the Tourism Research Australia (TRA). The survey is conducted with a sample of 40,000 short-term (less than 12 months) international travellers, visiting Australia (as they depart), who are aged 15 years and over. Surveys are conducted in the departure lounges of the eight major international airports: Sydney, Melbourne, Brisbane, Cairns, Perth, Adelaide, Darwin and the Gold Coast.

The results of the survey are weighted to correspond to data on international visitor numbers which are provided by the Department of Immigration and Border Protection (DIBP). The results are weighted by:

- country of residence;
- state of arrival;
- main purpose of journey; airport of departure; and age and gender of visitor.

Data are presented for all international visitors to Queensland from 2005 to 2016.

2.2 Crash data

Data were provided by Transport and Main Roads (TMR) from the Queensland Road Crash Database for the period 1 January 2003 to 31 December 2016. During the period, drivers in Queensland were required to report all crashes to the police that "resulted from the movement of at least one road vehicle on a road and involving death or injury to any person" (TMR, 2015).

Included in the information provided for each crash was:

- The age, gender, and licence status for all controllers of motorised vehicles (including cars, car derivatives, trucks, buses, motorcycles and tractors) involved in the crash;
- Details of the circumstances of the crash including the day, time, location, prevailing road traffic conditions, and type of vehicles involved; and
- The contributing factors to the crash as cited by the attending police officer.

In Queensland, a crash is classed 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 taken 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, 2015).

International driver and riders were identified in two ways:

1. A licence type of 'non-Australia' or a licence state of 'overseas'.
2. A residence that indicates a non-Australian residence (either by town/city or country)

For the residence categorisation, if the field had an overseas town or city that was also a town or city name from Australia, it was coded as international only when the field included 'OS'.

The following analyses relate to the involvement of international drivers/riders in crashes and any casualties resulting from these crashes. If the driver (or rider) of a vehicle is identified as an international visitor, then any passenger or pillion injuries (domestic or international) are included within these international statistics.

In addition, based on the residence of the injured individuals, all injured road users were able to be categorised as international. Analyses for these injured people were also conducted.

Country of origin was recorded for 16% of the identified international drivers. In addition, for those where country of origin was known, they were classified into left- and right-side driving countries based on available publications.

2.3 CTP claims data

Aggregate data were provided by the Queensland Motor Accident Insurance Commission for all Compulsory Third Party Claims resulting from crashes in Queensland from 1 January 2003 to 31 December 2016 where there was an at-fault international driver. Counts were provided for each year and also by age, gender, and vehicle type of the at fault international driver. Counts were also provided for crash type and road user type of the injured claimant.

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3 Results

3.1 International visitors

3.1.1 Overall trend

Queensland had around 2 million visitors each year from 2005 to 2016. As shown in Table 3, the number of international visitors to Queensland has increased by 21% from 2005 to 2016.

In 2016, the top ten countries of origin for visitors to Queensland were as follows:

1. China (18.8%)
2. New Zealand (17.4%)
3. United States (8.8%)
4. Japan (7.7%)
5. England (6.4%)
6. Germany (3.4%)
7. Taiwan (2.8%)
8. South Korea (2.7%)
9. Singapore (2.6%)
10. Hong Kong (2.5%)
11. India (2.2%)

As shown in Table 4, visitors from China had the largest increase in visitor numbers, followed by India. China went from fifth to first in the number of visitors. There were decreases for Japan and South Korea, with Japan going from first to fourth from 2005 to 2016.

Table 3: International visitors and resident population, Queensland, 2005-2016

Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	% change 2005-2016
International visitors (m)	2.13	2.17	2.15	2.05	1.97	2.04	1.89	1.99	2.04	2.15	2.34	2.57	21%
Queensland population	3.96	4.09	4.18	4.29	4.43	4.51	4.47	4.59	4.69	4.72	4.78	4.88	23%

Table 4: International visitors for the top 15 countries of origin, Queensland, 2005-2016

Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	% change 2005-2016
China	120,374	126,868	165,339	144,471	153,698	183,257	201,160	255,600	297,500	330,297	398,932	484,222	302%
New Zealand	418,215	413,556	430,016	406,312	398,289	402,849	406,393	405,239	383,175	414,736	423,644	447,136	7%
United States	160,808	172,009	168,281	159,497	155,073	144,669	145,006	159,337	153,527	166,119	197,330	225,631	40%
Japan	430,865	398,032	347,209	269,204	201,092	216,955	160,748	171,712	154,647	156,649	165,254	198,074	-54%
England	219,562	191,033	181,112	181,405	187,549	194,231	164,016	154,816	143,763	139,584	168,408	163,784	-25%
Germany	73,734	72,257	75,126	77,245	81,410	79,067	69,386	77,207	65,872	81,297	81,556	87,653	19%
Taiwan	53,300	49,496	47,996	41,163	51,862	46,714	37,292	40,522	47,752	49,884	60,096	72,304	36%
South Korea	80,267	89,007	79,877	71,528	65,811	79,107	67,293	62,090	56,822	47,181	57,921	70,676	-12%
Singapore	45,912	37,942	39,476	38,685	40,466	49,101	45,044	57,586	63,882	59,120	60,978	66,201	44%
Hong Kong	42,662	38,443	36,173	30,610	34,890	39,073	36,432	42,674	44,259	50,803	57,664	63,507	49%
India	17,533	21,137	25,606	28,402	25,343	22,932	28,563	29,900	40,955	43,783	58,877	57,239	226%
Canada	41,272	54,261	54,939	57,940	54,254	54,489	51,824	49,701	49,324	55,354	52,459	55,272	34%
Malaysia	25,631	28,144	28,168	39,974	39,545	45,551	40,063	41,105	45,000	46,447	44,031	47,692	86%
France	25,447	28,652	30,435	35,953	44,249	42,587	38,636	40,903	46,292	42,105	42,668	37,646	48%
Papua New Guinea	28,178	33,293	26,130	37,072	42,429	37,949	38,972	39,044	36,420	36,242	41,586	37,237	32%

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3.1.2 Age and gender

In 2016, 47.5% of visitors were male and 52.5% were female. As shown in Figure 2, the highest proportion of visitors were aged 55 and older³ followed by those aged 25-29 and 20-24. When the groups are collapsed, young people (aged 15-29) were the highest proportion of international visitors (32.8%).

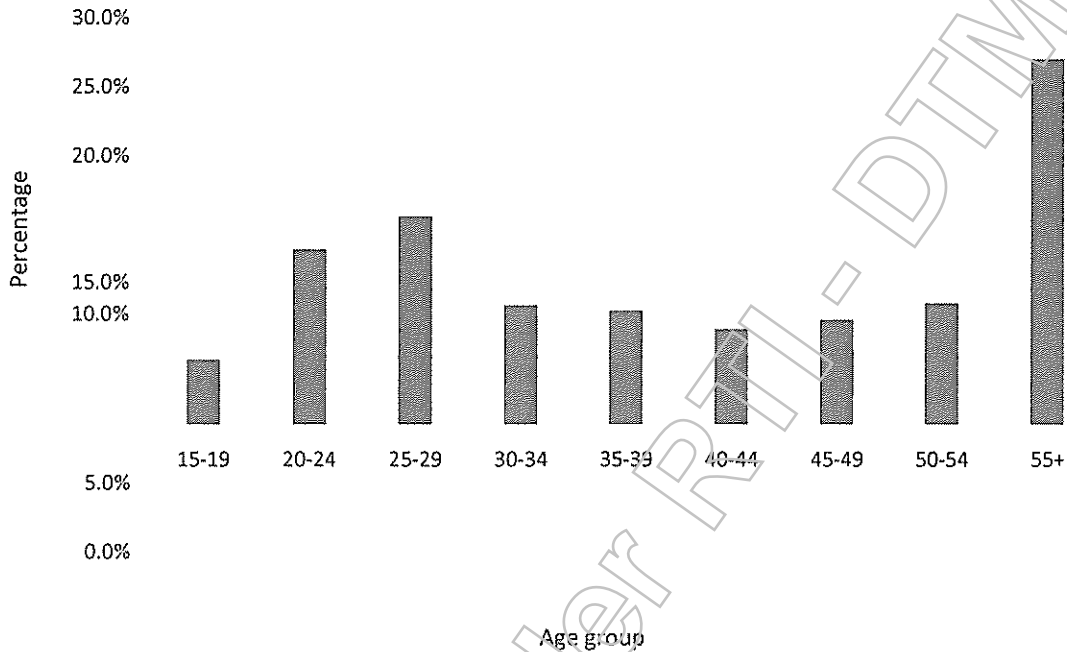


Figure 2: Age group of international visitors, Queensland, 2016

3.1.3 Purpose of travel

As shown in Table 5, in 2016 the most common purpose of travel was a holiday, followed by visiting friends and family.

Table 5: Proportion of international visitors with each purpose of travel, Queensland, 2016

Purpose of travel	%
Holiday	63.3
Visiting friends and relatives	18.9
Business	6.7
Employment	2.8
Education	5.3
Other reason	3.0

3.2 International visiting drivers

Table 6 shows the number and proportion of international visitors who drove a private vehicle or rental vehicle while they were visiting Queensland. It also shows the number of Queensland licence

³ It should be noted that this is a large age group compared to 5 year age groups in the other categories

holders in this period. From 2005 to 2016, the number of international visitors driving in Queensland increased by 42%. This is partly influenced by the increase in the number of visitors generally, as the proportion of international visitors driving while visiting Queensland increased by only 17%.

In 2016, the top ten countries of origin (based on number) for visitors to Queensland that reported driving were as follows:

1. New Zealand
2. China
3. England
4. United States
5. Germany
6. Japan
7. South Korea
8. Singapore
9. Taiwan
10. Canada

Based on the 2016 figures, the largest increase in the number of drivers from 2005 to 2016 was from India and then China. There were small decreases in the number of drivers from Japan and England (Table 7).

In 2016, the top ten countries of origin (based on proportion) for visitors to Queensland that reported driving were as follows:

1. New Zealand
2. Germany
3. Papua New Guinea
4. England
5. Malaysia
6. Singapore
7. Canada
8. South Korea
9. Taiwan
10. Hong Kong

As shown in Table 8, the largest increase in the proportion of drivers from 2005 to 2016 was from Japan followed by South Korea. There were no decreases in the proportion of drivers from any of the top 15 countries.

Across the sample, 59% of international drivers were from left-side driving and 41% were from rightside driving countries of origin.

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Table

Table 6: International visitor drivers and Queensland licence holders, Queensland, 2005-2016

Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	% change 2005-2016
International visitor drivers	683,347	737,499	760,728	753,411	760,812	785,858	722,561	722,623	732,634	807,873	893,303	969,153	42%
Queensland licence holders	2.55	2.63	2.73	2.81	2.89	2.95	3.06	3.13	3.20	3.21	3.26	3.33	31%
% driving	32.1%	34.0%	35.4%	36.8%	38.6%	38.5%	38.2%	36.3%	35.9%	37.6%	38.2%	37.7%	17%

Table 7: International

visitor drivers who reported driving for the top 15 countries of origin, Queensland, 2005-2016

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	% change 2005-2016
China	13,096	17,550	24,063	21,913	20,507	29,712	27,237	29,105	35,705	57,455	64,386	77,325	490%
New Zealand	230,897	241,808	245,934	237,546	234,958	244,994	231,811	240,876	237,567	247,585	259,158	282,585	22%
United States	40,855	46,373	41,768	46,624	44,612	42,693	38,839	43,195	37,025	43,213	57,630	64,198	57%
Japan	33,790	27,883	29,969	23,607	26,924	29,470	23,123	20,405	25,115	23,858	30,888	31,789	-6%
England	87,219	77,895	80,341	77,992	78,749	86,603	70,510	61,878	54,637	55,639	71,759	72,587	-17%
Germany	37,783	38,491	35,949	39,266	39,302	39,078	34,600	35,741	28,115	40,229	41,050	50,191	33%
Taiwan	17,644	14,870	13,874	10,571	19,259	13,084	13,213	12,548	14,747	17,444	20,129	23,946	36%
South Korea	17,060	28,078	26,360	27,008	27,370	27,720	25,071	18,198	11,516	15,188	20,252	27,625	62%
Singapore	13,390	12,574	14,359	11,510	13,980	18,413	16,316	23,993	22,451	22,755	28,081	27,371	104%
Hong Kong	9,138	12,614	12,834	10,356	10,601	12,151	12,270	13,253	14,668	14,677	17,109	20,800	128%
India	2,251	4,262	6,994	8,199	6,614	8,141	9,920	7,020	10,270	14,138	16,663	16,378	628%
Canada	17,353	19,612	20,874	22,043	20,948	21,333	18,263	18,161	17,069	20,588	17,808	22,606	30%
Malaysia	7,458	8,145	8,828	11,102	12,759	16,530	13,113	14,806	17,381	18,890	19,305	19,978	168%
France	6,924	13,200	12,421	14,324	20,673	18,695	18,941	16,828	20,417	18,640	20,574	16,213	134%

Papua New Guinea	15,768	15,320	10,524	13,277	19,595	13,716	15,865	17,858	16,402	18,470	19,765	20,365	29%
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8: Proportion of international visitors who reported driving for the top 15 countries of origin, Queensland, 2005-2016

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	% change 2005-2016
China	10.9%	13.8%	14.6%	15.2%	13.3%	16.2%	13.5%	11.4%	12.0%	17.4%	16.1%	16.0%	147%
New Zealand	55.2%	58.5%	57.2%	58.5%	59.0%	60.8%	57.0%	59.4%	62.0%	59.7%	61.2%	63.2%	114%
United States	25.4%	27.0%	24.8%	29.2%	28.8%	29.5%	26.8%	27.1%	24.1%	26.0%	29.2%	28.5%	112%
Japan	7.8%	7.0%	8.6%	8.8%	13.4%	13.6%	14.4%	11.9%	16.2%	15.2%	18.7%	16.0%	205%
England	39.7%	40.8%	44.4%	43.0%	42.0%	44.6%	43.0%	40.0%	38.0%	39.9%	42.6%	44.3%	112%
Germany	51.2%	53.3%	47.9%	50.8%	48.3%	49.4%	49.9%	46.3%	42.7%	49.5%	50.3%	57.3%	112%
Taiwan	33.1%	30.0%	28.9%	25.7%	37.1%	28.0%	35.4%	31.0%	30.9%	35.0%	33.5%	33.1%	100%
South Korea	21.3%	31.5%	33.0%	37.8%	41.6%	35.0%	37.3%	29.3%	20.3%	32.2%	35.0%	39.1%	184%
Singapore	29.2%	33.1%	36.4%	29.8%	34.5%	37.5%	36.2%	41.7%	35.1%	38.5%	46.1%	41.3%	142%
Hong Kong	21.4%	32.8%	35.5%	33.8%	30.4%	31.1%	33.7%	31.1%	33.1%	28.9%	29.7%	32.8%	153%
India	12.8%	20.2%	27.3%	28.9%	26.1%	35.5%	34.7%	23.5%	25.1%	32.3%	28.3%	28.6%	223%
Canada	42.0%	36.1%	38.0%	38.0%	38.6%	39.2%	35.2%	36.5%	34.6%	37.2%	33.9%	40.9%	97%
Malaysia	29.1%	28.9%	31.3%	27.8%	32.3%	36.3%	32.7%	36.0%	38.6%	40.7%	43.8%	41.9%	144%
France	27.2%	46.1%	40.8%	39.8%	46.7%	43.9%	49.0%	41.1%	44.1%	44.3%	48.2%	43.1%	158%
Papua New Guinea	56.0%	46.0%	40.3%	35.8%	46.2%	36.1%	40.7%	45.7%	45.0%	51.0%	47.5%	54.7%	98%

Released under RTI - DTMR

3.2.1 Age and gender

In 2016, 48.6% of visitors who reported driving were male and 51.4% were female. As shown in Figure 3, the highest proportion of visitors who report driving were aged 55 and older⁴ followed by those aged 25-29 and 20-24. When the groups are collapsed, young people (aged 15-29) were the highest proportion of international visitors who report driving (33.3%). This is much the same pattern as for all international visitors.

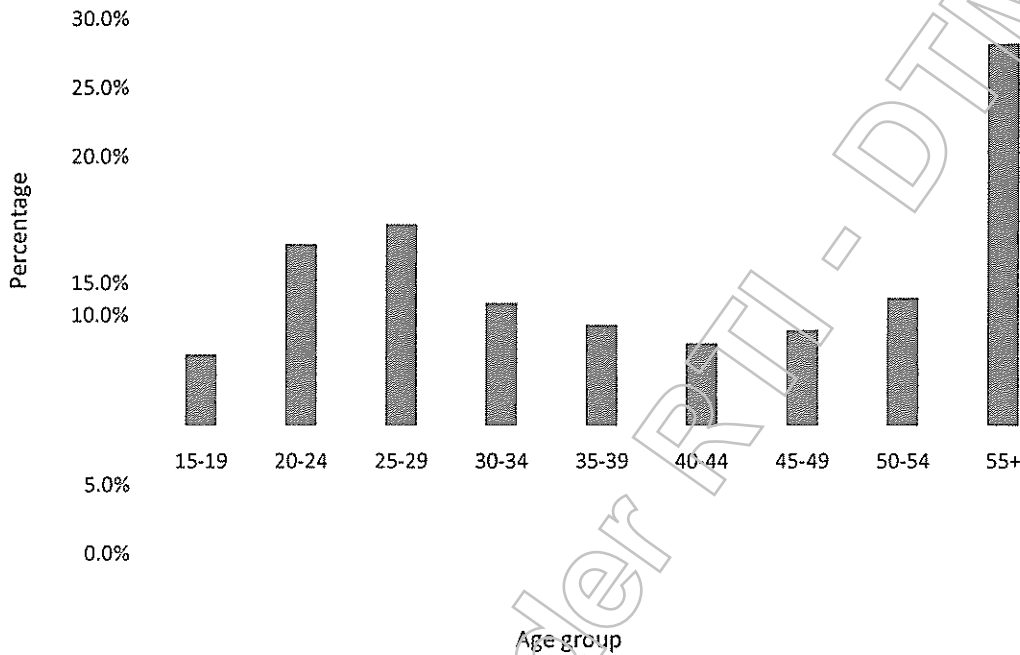


Figure 3: Age group of international visitors who report driving, Queensland, 2016

3.2.2 Purpose of travel

As shown in Table 9, in 2016 the most common purpose of travel for those who reported driving was visiting family and friends, followed by holiday. Compared to all international visitors, a much higher proportion of visitors who report driving were visiting family and friends (40% versus 19%) and a much lower proportion were visiting for a holiday (40% versus 63%).

Table 9: Proportion of international visitors who reported driving with each purpose of travel, Queensland, 2016

Purpose of travel	%
Holiday	39.9
Visiting friends and relatives	40.4
Business	5.1
Employment	4.0
Education	7.9
Other reason	2.8

⁴ It should be noted that this is a large age group compared to 5 year age groups in the other categories

Table

Length of stay

For international visitors who reported driving, 73.2% stayed in Queensland for one month or less. The breakdown for length of stay is presented in Table 10.

10: Proportion of international visitors who reported driving by length of stay, Queensland, 2016

Purpose of travel	%
1-7 nights	31.3
8-14 nights	22.4
15-30 nights	19.5
31 or more nights	26.8

3.2.3 Type of vehicle

For the international visitors who reported driving, 67.5% reported driving a private or company vehicle and 32.5% reported using a rental vehicle.

3.3 International crashes

3.3.1 Overall

There were 3,216 drivers and riders involved in crashes from 2003 to 2016 with a non-Australian licence. There were an additional 133 drivers and riders involved in crashes from 2003 to 2016 that were identified as international based on their residence, resulting in a total of 3,349 international drivers and riders involved in crashes in the period. Information about country of origin is available for 603 of these driver and riders.

There were 2,834 injuries as a result of a crash involving a driver/rider with a non-Australian licence. An additional 208 injuries were as a result of a crash involving a driver/rider identified as international based on residence. There were 3,042 injuries as a result of crashes involving an international driver or rider.

There were 2,099 injuries to international road users. Of these, 1,876 (89.4%) were as a result of a crash involving an international driver/rider. In addition, 1,089 (35.8%) injured road users involved in crashes involving international drivers/riders were not international road users.

There were 3,390 crashes involving international drivers and riders, with 3,480 crashes involving an international road user.

3.3.2 Trends over time

3.3.2.1 Casualties

The number of total casualties in Queensland has decreased by 10% from 2003 to 2016. There has been a reduction for fatalities and minor injuries, but slight increases in the number hospitalised and medically treated (Table 11).

For casualties resulting from international driver crashes (based on licence type), while there was also a reduction in the total number of casualties (6%), there was an increase in fatalities and medically treated (Table 12) When examining casualties resulting from international driver crashes (based on residence and licence type), there was a decrease of 12% in casualties, with decreases in all severity types except for medically treated (Table 13).

For casualties where the road user injured was identified as being international, there was a 36% reduction in casualties, with reductions for all severities. It should be noted that there were no international fatalities identified in 2016 (Table 14).

Table 15 shows the proportion of all casualties that resulted from a crash involving an international driver/rider. The percentage for all casualties was much the same in 2016 as it was in 2003 (with some fluctuations throughout the years. For hospitalisations, there was a 28% decrease and there were slight increases for medically treated and minor injury (12% and 8% respectively).

There appears to be a considerable drop in the numbers and proportions of international driver crash casualties that may be due to issues with the data. These issues are discussed further in section 3.5 Data issues.

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Table

11: Total casualties in Queensland by severity and year: Queensland 2003-2016

Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2016/ 2003
Fatality	310	311	330	335	360	328	331	249	269	280	271	223	243	251	0.81
Hospitalised	5799	6228	6307	5885	6055	6838	6674	6499	6388	6553	6936	6605	6141	6275	1.08
Medically treated	7369	7358	7301	7412	7548	8004	7962	7293	6902	7215	7321	7054	7566	7467	1.01
Minor injury	4671	4589	4383	4907	6089	5150	4074	3893	3437	3045	2478	2505	1934	2257	0.48
Total casualties	18149	18486	18321	18539	20052	20320	19041	17934	16996	17093	17006	16387	15884	16250	0.90

Table 12: Casualties from

crashes involving an international driver/rider (based on licence type only) by severity and year: Queensland 2003-2016

Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2016/ 2003
Fatality	3	4	9	5	5	5	8	4	3	3	3	4	8	4	1.33
Hospitalised	136	119	152	70	49	57	57	57	62	55	110	91	120	121	0.89
Medically treated	142	133	116	82	41	68	106	71	56	29	179	144	142	167	1.18
Minor injury	69	72	69	52	31	48	42	28	26	15	40	56	43	37	0.54
Total casualties	350	328	346	209	126	178	213	160	147	102	332	295	313	329	0.94

Table 13: Casualties from crashes involving an international driver/rider (based on residence or licence type) by severity and year: Queensland 2003-2016

Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2016/ 2003
Fatality	5	5	9	8	5	5	8	4	3	4	3	4	8	4	0.80
Hospitalised	187	177	207	102	84	79	89	78	79	79	157	148	167	146	0.78
Medically treated	212	217	198	122	73	107	157	112	93	58	259	250	226	240	1.13

Minor injury	102	102	114	95	50	69	57	47	53	24	71	78	63	53	0.52
Total casualties	506	501	528	327	212	260	311	241	228	165	490	480	464	443	0.88

Table 14: International casualties (based on residence and licence type) from crashes by severity by year: Queensland 2003-2016

Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2016/ 2003
Fatality	7	3	4	4	4	6	2	1	2	2	1	2	3	0	0.00
Hospitalised	86	88	111	65	37	34	27	29	26	28	38	61	61	52	0.60
Medically treated	104	95	98	67	30	33	44	36	28	28	96	72	79	86	0.83
Minor injury	49	49	55	41	26	22	26	21	15	11	27	30	27	20	0.41
Total casualties	246	235	268	177	97	95	99	87	71	69	162	165	170	158	0.64

Table 15: Casualties arising from a crash involving an international controller as a percentage of total reported casualties by severity and year: Queensland 2003-2016

Year	2003 %	2004 %	2005 %	2006 %	2007 %	2008 %	2009 %	2010 %	2011 %	2012 %	2013 %	2014 %	2015 %	2016 %	2016/ 2003
Fatality	1.61	1.61	2.73	2.39	1.39	1.52	2.42	1.61	1.12	1.43	1.11	1.79	3.29	1.59	0.99
Hospitalised	3.22	2.84	3.28	1.73	1.39	1.16	1.33	1.20	1.24	1.21	2.26	2.24	2.72	2.33	0.72
Medically treated	2.88	2.95	2.71	1.65	0.97	1.34	1.97	1.54	1.35	0.80	3.54	3.54	2.99	3.21	1.12
Minor injury	2.18	2.22	2.60	1.94	0.82	1.34	1.40	1.21	1.54	0.79	2.87	3.11	3.26	2.35	1.08
Total casualties	2.79	2.71	2.88	1.76	1.06	1.28	1.63	1.34	1.34	0.97	2.88	2.93	2.92	2.73	0.98

3.3.2.2 Drivers and riders

There has been a 9% reduction in the number of drivers and riders involved in crashes in Queensland from 2003 to 2016. This is mainly influenced by a 16% reduction in fatal crashes and a 61% reduction in minor injury crashes. There were slight increases in hospitalisation crashes and medical treatment crashes (Table 16).

For international drivers involved in crashes, there was a 16% reduction from 2003 to 2016. Reductions were found for all crash severities except for medical treatment crashes with an 11% increase (Table 17).

Table 16: Total drivers and riders involved in crashes by crash severity and year: Queensland 2003-2016

Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2016/ 2003
Fatal	416	424	440	448	503	447	441	352	343	401	351	297	318	350	0.84
Hospitalisation	7424	8057	8207	7875	8098	8983	8840	8566	8513	8603	9230	8783	8079	8372	1.13
Medical treatment	9882	9927	9779	9977	10121	10539	10365	9834	9233	9770	10005	9738	10540	10477	1.06
Minor injury	5944	5819	5512	6000	6904	5732	4593	4560	3977	3239	2440	2520	1922	2297	0.39
Total drivers	23666	24227	23938	24300	25626	25701	24239	23312	22066	22013	22026	21338	20859	21496	0.91

Table 17: International drivers and riders involved in crashes by crash severity year: Queensland 2003-2016

Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2016/ 2003
Fatal	5	5	6	7	5	4	6	4	3	4	2	3	5	4	0.80
Hospitalisation	114	126	127	72	57	54	61	52	53	49	108	118	130	94	0.82
Medical treatment	135	147	119	76	38	77	94	73	62	39	171	169	162	150	1.11
Minor injury	58	61	70	63	32	42	31	33	27	9	40	42	30	21	0.36
Total drivers	312	339	322	218	132	177	192	162	145	101	321	332	327	269	0.86

3.3.3 Crash characteristics (involving an international driver/rider)

The following characteristics were the most common (see Table 18) for both international and noninternational crashes:

- Medical treatment
- Angle
- Multi-vehicle
- Intersection
- No traffic control
- 60 km/hr and lower speed zones
- Major Cities
- Day time
- Weekdays

However, compared to crashes not involving an international driver, crashes involving an international driver were more likely to be:

- Medical treatment crashes
- Angle
- Overturn
- Head-on
- Multi-vehicle

They were also more likely to occur:

- in locations with traffic control
- in 100-110 km/hr speed zones
- in Outer Regional, Remote, and Very Remote locations
- during the day

Table 18: Crash characteristics for non-international and international driver crashes

Characteristic	Non-international driver n (%)	International driver n (%)	Statistical significance
Crash severity			
Fatal	3,667 (2.0)	63 (1.9)	
Hospitalisation	71,440 (38.9)	1,205 (36.4)	
Medical treatment	75,578 (41.1)	1,488 (44.9)	
Minor Injury	33,146 (18.0)	555 (16.8)	$\chi^2(3) = 19.72$, $p < .001$, $\phi_c = .01$
Crash nature			
Angle	54,755 (29.8)	1,219 (36.8)	$\chi^2(1) = 76.69$, $p < .001$, $\phi_c = .01$
Rear-end	45,830 (24.9)	842 (25.4)	$\chi^2(1) = 0.43$, $p = .510$, $\phi_c = .002$

Characteristic	Non-international driver n (%)	International driver n (%)	Statistical significance
Hit object	43,076 (23.4)	545 (16.5)	$\chi^2(1) = 88.44$, $p < .001$, $\phi_c = .02$
Overtaken	9,666 (5.3)	216 (6.5)	$\chi^2(1) = 10.42$, $p < .001$, $\phi_c = .007$
Crash type			
Single vehicle	57,932 (31.9)	824 (25.1)	$\chi^2(2) = 170.98$, $p < .001$, $\phi_c = .01$
Multi-vehicle	113,641 (62.6)	2,396 (72.9)	
Pedestrian	9,849 (5.4)	67 (2.0)	
Intersection			
No	7,370 (8.5)	139 (7.9)	$\chi^2(1) = 0.69$, $p = .403$, $\phi_c = .003$
Yes	79,771 (91.5)	1,621 (92.1)	
Traffic control			
No	127,438 (69.3)	2,052 (62.0)	$\chi^2(1) = 82.39$, $p < .001$, $\phi_c = .02$
Yes	56,393 (30.7)	1,259 (38.0)	
Speed limit			
<=60 km/hr	123,123 (67.0)	2,066 (62.4)	$\chi^2(1) = 34.42$, $p < .001$, $\phi_c = .01$
70-90 km/hr	28,954 (15.8)	562 (17.0)	
100-110 km/hr	31,751 (17.3)	683 (20.6)	
Remoteness			
Major Cities	112,298 (61.1)	1,854 (56.0)	$\chi^2(5) = 216.79$, $p < .001$, $\phi_c = .03$
Inner Regional	37,115 (20.2)	531 (16.0)	
Outer Regional	27,508 (15.0)	693 (20.9)	
Remote	3,841 (2.1)	135 (4.1)	
Very Remote	2,819 (1.5)	95 (2.9)	
Time of day			
Day (6am-5.59pm)	136,110 (74.0)	2,554 (77.1)	$\chi^2(1) = 16.24$, $p < .001$, $\phi_c = .009$
Night (6pm – 5.59am)	47,721 (26.0)	757 (22.9)	
Day of week			
Weekday (Mon –Fri)	137,350 (74.7)	2,434 (73.5)	

Weekend (Sat-Sun) 46,481 (25.3) 887 (26.5) $\chi^2(1) = 2.49, p = .115, \phi_c = .004$

Table 19 shows the DCA group rankings for international and non-international crashes, and Table 20 displays individual DCA rankings. The rankings were somewhat similar with the exception of head-on crashes that were ranked fourth for international crashes but not ranked in the top five for non-international crashes.

Table 19: DCA group rankings for non-international and international driver crashes

Crashes not involving an international driver	Crashes involving an international driver
1. Rear-end (24.4%)	1. Rear-end (24.8%)
2. Intersection from adjacent approaches (14.4%)	2. Intersection from adjacent approaches (16.6%)
3. Opposing vehicles turning (8.8%)	3. Opposing vehicles turning (14.5%)
4. Off carriageway on straight, hit object (8.7%)	4. Head-on (6.7%)
5. Off carriageway on curve, hit object (7.0%)	5. Off carriageway on curve, hit object (5.9%)

Table 20: DCA rankings for non-international and international driver crashes

Crashes not involving an international driver	Crashes involving an international driver
1. Vehicles Same Direction: Rear End (17.3%)	1. Vehicles Same Direction: Rear End (18.3%)
2. Vehicles Opposite Approach: Thru-Right (8.6%)	2. Vehicles Opposite Approach: Thru-Right (14.3%)
3. Vehicles Adjacent Approach: Thru-Thru (6.2%)	3. Vehicles Adjacent Approach: Thru-Thru (8.7%)
4. Vehicles Adjacent Approach: Thru-Right (5.3%)	4. Vehicles Opposite Approach: Head On (6.5%)
5. Off Path-Straight: Left Off Carriageway Hit Object (5.2%)	5. Vehicles Adjacent Approach: Thru-Right (5.3%)
6. Vehicles Same Direction: Right Rear (5.2%)	6. Vehicles Same Direction: Right Rear (3.6%)
7. Off Path-Curve: Off Carriageway Right Bend Hit Object (4.0%)	7. Off Path-Straight: Left Off Carriageway Hit Object (3.4%)
8. Vehicles Opposite Approach: Head On (3.7%)	8. Vehicles Same Direction: Left Rear (2.9%)
9. Vehicles Same Direction: Left Rear (3.5%)	9. Off Path-Curve: Off Carriageway Right Bend Hit Object (2.8%)
10. Off Path-Curve: Off Carriageway Left Bend Hit Object (3.0%)	10. Off Path-Curve: Off Carriageway Left Bend Hit Object (2.7%)

The patterns for month of year, day of week, and time of day were similar for international and noninternational crashes (Figure 4-7).

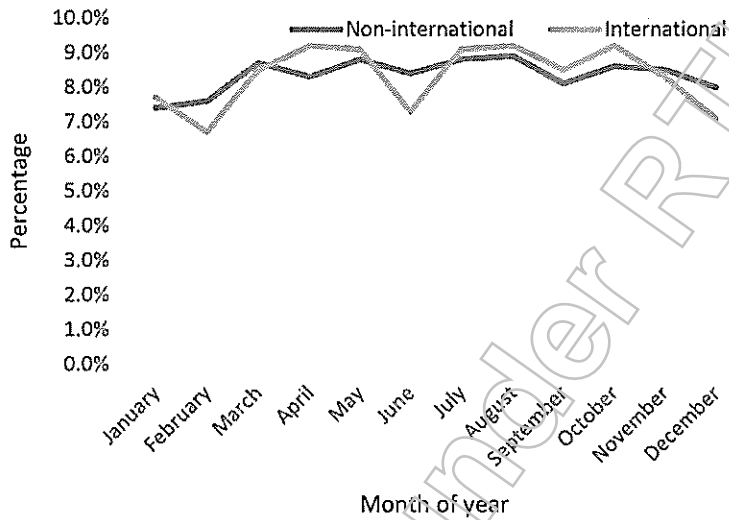
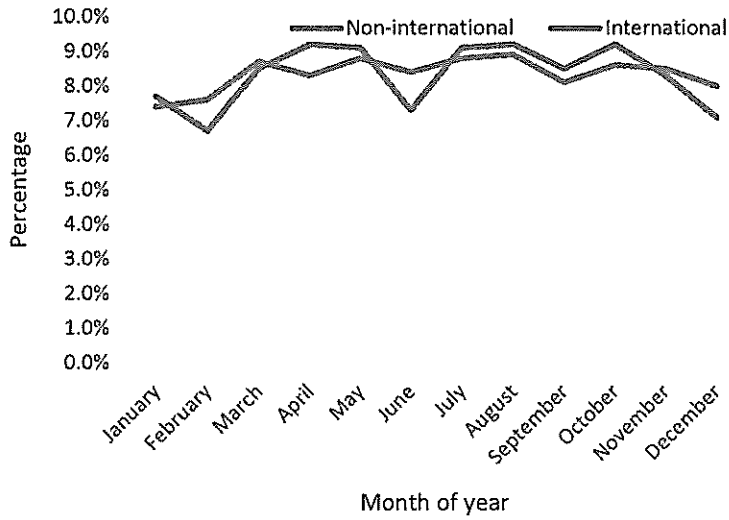
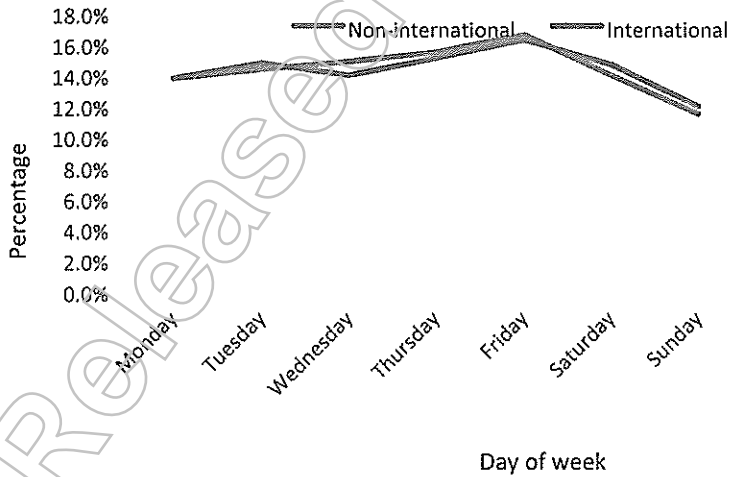


Figure 4: Month of year for non-international and international driver crashes



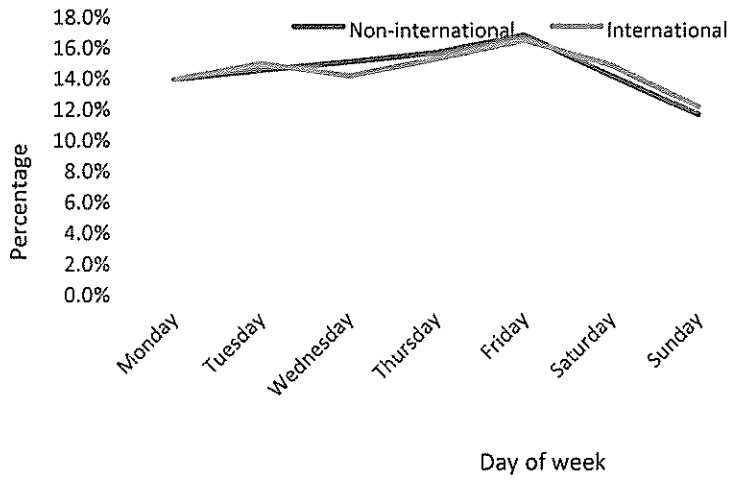


Figure 5: Day of week for non-international and international driver crashes

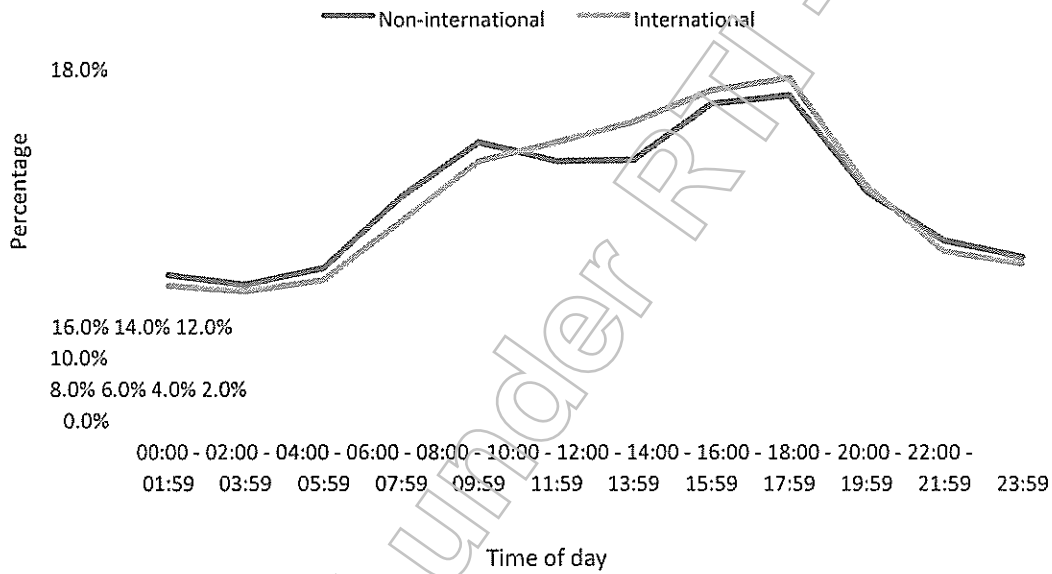


Figure 6: Time of day for non-international and international driver crashes

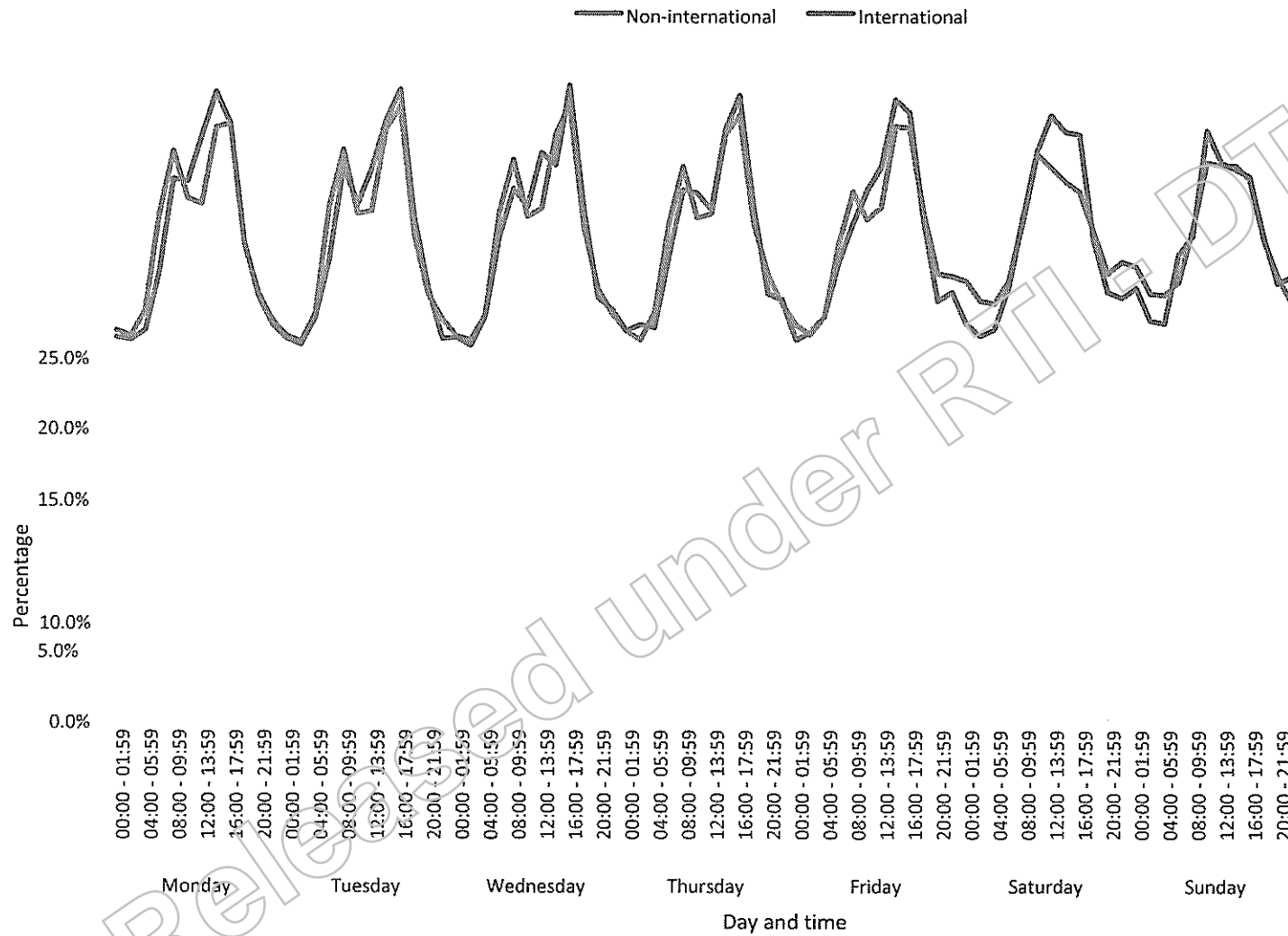


Figure 7: Day of week and time of day for non-international and international driver crashes

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3.3.4 Driver/rider characteristics (international driver/rider)

Table 21 displays the driver/rider characteristics of non-international and international drivers involved in crashes. The following characteristics were the most common for both international and non-international drivers involved in crashes:

- Male
- Aged 25-59
- Light passenger vehicle drivers
- Driving vehicles registered for private use

However, compared to non-international drivers involved in crashes, international drivers involved in crashes were more likely to be:

- Aged 17-24
- Riding a moped
- Driving a rental vehicle
- Carrying passengers
- Most at fault

Specifically, unlike non-international drivers, the majority of international drivers were carrying passengers and were deemed most at fault.

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Table 21: Driver/rider characteristics for non-international and international drivers involved in crashes

Characteristic	Non-international driver n (%)	International driver n (%)	Statistical significance
Gender			
Male	189,382 (60.9)	2,208 (66.3)	$\chi^2(1) = 40.79$, $p < .001$, $\phi_c = .01$
Female	121,704 (39.1)	1,122 (33.7)	
Age group			
17-24	76,281 (24.9)	1,084 (33.1)	$\chi^2(3) = 222.40$, $p < .001$, $\phi_c = .03$
25-59	194,512 (62.9)	2,021 (61.6)	
60-74	28,844 (9.3)	145 (4.4)	
75+	9,030 (2.9)	31 (0.9)	
Vehicle type			
Light passenger vehicle	279,673 (87.0)	3,067 (91.6)	$\chi^2(5) = 374.31$, $p < .001$, $\phi_c = .03$
Motorcycle	21,091 (6.6)	95 (2.8)	
Heavy freight vehicle	13,891 (4.3)	33 (1.0)	
Bus	3,651 (1.1)	51 (1.5)	
Moped	1,437 (0.4)	70 (2.1)	
Special purpose vehicle	1,715 (0.5)	33 (1.0)	
Passengers			
No	227,972 (70.9)	1,671 (49.9)	$\chi^2(1) = 707.15$, $p < .001$, $\phi_c = .05$
Yes	93,486 (29.1)	1,678 (50.1)	
Registered purpose of use			
Private	240,144 (74.7)	1,923 (57.4)	$\chi^2(3) = 8029.54$, $p < .001$, $\phi_c = .16$
Rental	2,622 (0.8)	519 (15.5)	
Commercial	48,944 (15.2)	251 (7.5)	
Other	29,748 (9.3)	656 (19.6)	
Most at fault (multivehicle)			
No	137,421 (54.6)	918 (36.7)	$\chi^2(1) = 316.84$, $p < .001$, $\phi_c = .04$
Yes	114,462 (45.4)	1,581 (63.3)	

Table 22 shows the rankings of contributing circumstances for non-international drivers and international drivers. For international drivers, 'turn in face of oncoming traffic', 'disobey give way sign', 'fail to give way' were ranked higher than for the non-international drivers.

Table 22: Contributing circumstance rankings for non-international and international drivers involved in crashes

Domestic driver	International driver
1. Driving Without Due Care And Attention (14.7%)	1. Driving Without Due Care And Attention (15.1%)
2. Follow Too Closely (6.7%)	2. Turn In Face Of Oncoming Traffic (5.7%)
3. Inexperience/Lack Of Expertise (6.5%)	3. Disobey Give Way Sign (5.3%)
4. Driver Conditions – Miscellaneous (5.3%)	3. Fail To Give Way (5.3%)
5. Miscellaneous (5.2%)	5. Road - Wet/Slippery (5.1%)
6. Road - Wet/Slippery (4.9%)	6. Driver Conditions – Miscellaneous (4.9%)
7. Disobey Give Way Sign (4.6%)	7. Follow Too Closely (4.5%)
7. Over Prescribed Alcohol Limit (4.6%)	8. Inexperience/Lack Of Expertise (4.1%)
9. Turn In Face Of Oncoming Traffic (3.8%)	9. Disobey Red Traffic Light (3.9%)
10. Fail To Give Way (3.7%)	10. Disobey Stop Sign (3.4%)

As shown in Table 23, when compared to non-international drivers, international drivers were more likely to be assigned the following contributing circumstances:

- Fatigue
- Violation of road rules
- Road conditions (Table 23)

International drivers were less likely to be assigned contributing circumstances of:

- Alcohol
- Speed
- Inattention
- Follow too closely (Table 23)

Table 23: Comparison of contributing circumstances for non-international and international drivers involved in crashes

Contributing circumstance	Non-international driver n (%)	International driver n (%)	Statistical significance
Alcohol	21,220 (7.7)	157 (4.5)	$\chi^2(1) = 48.31$, $p < .001$, $\phi_c = .01$
Speed	8,243 (3.0)	98 (2.8)	$\chi^2(1) = 0.29$, $p = .585$, $\phi_c = .001$
Fatigue	4,206 (1.5)	96 (2.8)	$\chi^2(1) = 35.06$, $p < .001$, $\phi_c = .01$

Inattention	3,372 (1.2)	10 (0.3)	$\chi^2(1) = 24.93$, $p < .001$, $\phi_c = .009$
Undue care and attention	40,656 (14.7)	524 (15.1)	$\chi^2(1) = 0.41$, $p = .521$, $\phi_c = .001$
Violation of road rules	60,063 (21.7)	1,136 (32.7)	$\chi^2(1) = 242.67$, $p < .001$, $\phi_c = .03$
Contributing circumstance	Non-international driver n (%)	International driver n (%)	Statistical significance
Follow too closely	18,558 (6.7)	158 (4.5)	$\chi^2(1) = 25.67$, $p < .001$, $\phi_c = .01$
Road conditions	25,205 (9.1%)	379 (10.9%)	$\chi^2(1) = 13.38$, $p < .001$, $\phi_c = .007$
Atmospheric conditions	2,895 (1.0%)	37 (1.1%)	$\chi^2(1) = 0.01$, $p = .914$, $\phi_c = .001$
Lighting conditions	7,323 (2.6%)	73 (2.1%)	$\chi^2(1) = 3.97$, $p = .046$, $\phi_c = .004$
Vehicle	4,328 (1.6)	52 (1.8)	$\chi^2(1) = 1.08$, $p = .299$, $\phi_c = .002$

Country of origin was recorded for 16% of the identified international drivers.

The top ten countries of origin were as follows:

1. New Zealand (18.4%)
2. United States (16.1%)
3. England (15.1%)
4. Germany (12.2%)
5. Switzerland (4.5%)
6. Canada (4.0%)
7. Ireland (3.2%)
8. France (3.0%)
9. Netherlands (1.7%)
10. Scotland (1.7%)

For those where country of origin was recorded, 225 (55.8%) were from right side driving countries and 178 (44.2%) were from left side driving countries.

Table 24 compares some of the characteristics of international drivers involved in crashes with the characteristics of international visitors who reported driving while visiting Queensland. Males were over-represented in crashes, as were young drivers and visitors from right-side driving countries.

Table 24: Driver rider characteristics international drivers involved in crashes and international visitors who report driving

Characteristic	International drivers involved in crashes %	International visitors reporting driving
Gender		
Male	66.3	47.5
Female	33.7	52.5
Age group		
17-24	33.1	18.5
25-59	61.6	62.6
60+	5.3	19.7
Driving side		
Left-side	44.2	59.0
Right-side	55.8	41.0

3.3.5 Crash characteristics (left hand side versus right hand side international drivers)
The following characteristics were the most common (see Table 25) for both left and right side international crashes:

- Hospitalisation
- Angle
- Multi-vehicle
- Intersection
- No traffic control
- 60 km/hr and lower speed zones
- Day time
- Weekdays

However, compared to crashes involving an international driver from a left hand side driving country, crashes involving an international driver from a right side driving country were more likely to be:

- Angle
- Head-on

They were also less likely to be rear-end crashes.

They were also more likely to occur in Inner Regional, Outer Regional, and Very Remote locations.

25: Crash characteristics for left and right side international driver crashes

Characteristic	Left hand side international driver n (%)	Right hand side international driver n (%)	Statistical significance
Crash severity			
Fatal	10 (3.5)	11 (3.7)	
Hospitalisation	111 (41.4)	128 (40.8)	
Medical treatment	95 (35.4)	123 (39.2)	
Minor Injury	52 (19.4)	52 (16.6)	$\chi^2(3) = 1.23$, $p = .747$, $\phi_c = .05$
Crash nature			
Angle	68 (25.4)	115 (36.6)	$\chi^2(1) = 8.49$, $p = .004$, $\phi_c = .12$
Rear-end	70 (26.1)	38 (12.1)	$\chi^2(1) = 18.80$, $p < .001$, $\phi_c = .18$
Hit object	43 (16.0)	44 (14.0)	$\chi^2(1) = 0.47$, $p = .493$, $\phi_c = .03$
Overtaken	34 (12.7)	38 (12.1)	$\chi^2(1) = 0.05$, $p = .831$, $\phi_c = .009$
Sideswipe	16 (6.0)	17 (5.4)	$\chi^2(1) = 0.08$, $p = .772$, $\phi_c = .01$
Head-on	21 (7.8)	49 (15.6)	$\chi^2(1) = 8.25$, $p = .004$, $\phi_c = .12$
Fall from vehicle	11 (4.1)	7 (2.2)	$\chi^2(1) = 1.69$, $p = .193$, $\phi_c = .05$
Crash type			
Single vehicle	87 (32.8)	88 (28.2)	
Multi-vehicle	175 (66.0)	219 (70.2)	
Pedestrian	3 (1.1)	5 (1.6)	$\chi^2(2) = 1.60$, $p = .449$, $\phi_c = .05$
Intersection			
No	9 (8.0)	20 (13.5)	
Yes	103 (92.0)	128 (86.5)	$\chi^2(1) = 1.93$, $p = .165$, $\phi_c = .09$
Traffic control			
No	191 (71.3)	219 (69.7)	
Yes	77 (28.7)	95 (30.3)	$\chi^2(1) = 0.16$, $p = .688$, $\phi_c = .02$
Speed limit			
≤ 60 km/hr	139 (51.9)	137 (43.6)	
70-90 km/hr	40 (14.9)	64 (20.4)	
100-110 km/hr	89 (33.2)	113 (36.0)	$\chi^2(1) = 4.79$, $p = .091$, $\phi_c = .09$
Remoteness			
Major Cities	111 (41.4)	70 (22.3)	

Table

Inner Regional	43 (16.0)	73 (23.2)	
Outer Regional	74 (27.6)	121 (38.5)	
Remote	26 (9.7)	25 (8.0)	
Very Remote	13 (4.9)	24 (7.6)	$\chi^2(5) = 28.20,$
Characteristic	Left hand side international driver n (%)	Right hand side international driver n (%)	Statistical significance
$p < .001, \phi_c = .22$			
Time of day			
Day (6am-5.59pm)	231 (86.2)	251 (79.9)	
Night (6pm – 5.59am)	37 (13.8)	63 (20.1)	$\chi^2(1) = 3.98, p = .046, \phi_c = .08$
Day of week			
Weekday (Mon –Fri)	194 (72.4)	239 (76.1)	
Weekend (Sat-Sun)	74 (27.6)	75 (23.9)	$\chi^2(1) = 1.05, p = .305, \phi_c = .04$

3.3.6 Characteristics of casualties resulting from international driver/rider crashes

As shown in Table 26, the following characteristics were the most common for both casualties resulting from international driver and non-international driver crashes:

- Aged 25-59
- Medically treated
- Drivers
- Restrained

However, compared to casualties resulting from non-international driver crashes, casualties resulting from international driver crashes were more likely to be:

- Female
- Aged 17-24
- Passengers
- Unrestrained

In addition, when only the known restraint cases were included, the restraint-wearing rate was lower for casualties resulting from international driver crashes (4.6% versus 4.0%).

26: Casualty characteristics for casualties resulting from non-international and international driver crashes

Characteristic	Non-international driver n (%)	International driver n (%)	Statistical significance
Gender			
Male	129,740 (53.1)	2,454 (48.0)	

Female	114,736 (46.9)	2,658 (52.0)	$\chi^2(1) = 51.54,$ $p < .001, \phi_c = .01$
Age group			
0-16	20,189 (8.3)	246 (4.9)	
17-24	60,389 (24.8)	1,537 (30.3)	
25-59	133,805 (55.0)	2,824 (55.7)	
60-74	20,502 (8.4)	360 (7.1)	
75+	8,322 (3.4)	103 (2.0)	$\chi^2(4) = 170.85,$ $p < .001, \phi_c = .03$
Casualty severity			
Fatality	4,016 (1.6)	75 (1.5)	
Hospitalised	87,404 (35.6)	1,779 (34.5)	
Medically treated	101,448 (41.4)	2,324 (45.1)	
Minor injury	52,434 (21.4)	978 (19.0)	$\chi^2(3) = 33.39,$ $p < .001, \phi_c = .01$
Road user			
Driver	145,998 (59.5)	2,728 (52.9)	
Motorcyclist	21,742 (8.9)	323 (6.3)	
Cyclist	11,100 (4.5)	76 (1.5)	
Pedestrian	10,898 (4.4)	74 (1.4)	
Passenger	54,274 (22.1)	1,926 (37.4)	
Pillion	1,290 (0.5)	29 (0.6)	$\chi^2(5) = 807.54,$ $p < .001, \phi_c = .06$
Restraint use (where applicable)			
Restrained	150,981 (75.9)	3,614 (78.6)	
Not restrained	6,274 (3.2)	175 (3.8)	
Unknown	41,797 (21.0)	811 (17.6)	$\chi^2(2) = 34.78,$ $p < .001, \phi_c = .01$
Helmet use (where applicable)			
Worn	29,289 (85.6)	392 (91.4)	
Not Worn	1,884 (5.5)	5 (1.2)	
Unknown	3,033 (8.9)	32 (7.5)	$\chi^2(1) = 17.23,$ $p < .001, \phi_c = .02$

3.3.7 Characteristics of international casualties

As shown in Table 27, the majority of international road user casualties were:

- Male



Table

- Aged 25-59
- Medically treated
- Drivers
- Restrained
- In a vehicle driven by an international driver
- In a crash where an international driver was involved

While the majority of international road user casualties were restrained, when examining just the known restraint use cases, the non-wearing rate was 6%. This is higher than both the casualties resulting from international driver crashes and the casualties resulting from non-international driver crashes.

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27: Casualty characteristics for casualties identified as international road users involved in crashes

Characteristic	N	%
Gender		
Male	1,134	54.4
Female	951	45.6
Age group		
0-16	44	2.1
17-24	680	32.9
25-59	1,189	57.4
60-74	131	6.3
75+	26	1.3
Casualty severity		
Fatality	41	2.0
Hospitalised	743	35.4
Medically treated	896	42.7
Minor injury	419	20.0
Road user		
Driver	1,433	68.3
Motorcyclist	160	7.6
Cyclist	22	1.0
Pedestrian	56	2.7
Passenger	424	20.2
Pillion	4	0.2
Restraint use (where applicable)		
Restrained	1,418	77.7
Not restrained	91	5.0
Unknown	316	17.3
Helmet use (where applicable)		
Worn	166	89.2
Not Worn	4	2.2
Unknown	16	8.6
In vehicle of international driver		
No	226	10.8
Yes	1,873	89.2
International driver involved		
No	223	10.6
Yes	1,876	89.4

Country of origin was recorded for 36.6% of the identified international casualties.

The top ten countries of origin were as follows:

Table

1. England (21.5%)
2. New Zealand (12.6%)
3. United States (10.2%)
4. Germany (9.0%)
5. Canada (6.0%)
6. Japan (5.1%)
7. France (4.0%)
8. Switzerland (3.6%)
9. Ireland (3.0%)
10. South Korea (2.6%)
11. Israel (2.2%)

3.4 Queensland CTP claims

As shown in Figure 1, the number of crashes involving a CTP claim against an at-fault international driver has decreased from 2003-2016. In total from 2003-2016, there have been 163 crashes involving a CTP claim against an at-fault international driver. There were 213 injured claimants involved in these crashes.

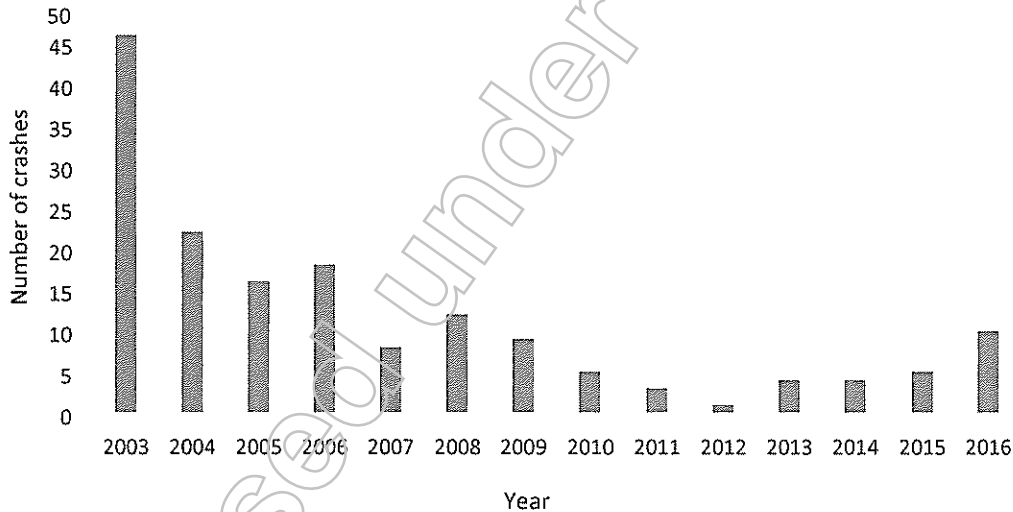


Figure 8: Number of crashes involving a CTP claim against an at-fault international driver in Queensland 2003-2016

The majority of at-fault international drivers were male, with the most common age group being 25-59 years (Table 28).

28: Age and gender of international at-fault drivers involved in CTP claim crashes in Queensland 2003-2016

At-fault Driver Age Group	Female n (%)	Male n (%)	Unknown n (%)	Total n (% of age)
17-24	8 (27.6)	23 (22.1)	0 (0.0)	31 (19.0)

25-59	17 (58.6)	44 (42.3)	0 (0.0)	61 (37.4)
60-74	2 (6.9)	9 (8.7)	0 (0.0)	11 (6.7)
75+	0 (0.0)	2 (1.9)	0 (0.0)	2 (1.2)
Unknown	2 (6.9)	26 (25.0)	30 (100.0)	58 (35.6)
Total n (% of gender)	29 (17.8)	104 (63.8)	30 (18.4)	163 (100.0)

The most common vehicle type driven by the at-fault international driver was a hire vehicle, followed by a private car/sedan (Table 29).

Table 29: Vehicle types of at-fault international drivers involved in CTP claim crashes in Queensland 2003-2016

At-fault Vehicle Type	Crashes	%
Hire Vehicle	59	36.2
Car/Sedan	54	33.1
Ute/Light Truck	15	9.2
Bus	14	8.6
Other	14	8.6
Heavy Truck	4	2.5
Motorbike	3	1.8
Total	163	100.0

The most common crash type was rear-end, followed by intersection crashes and vehicles in opposing directions (Table 30).

Table 30: Crash types of CTP claim crashes involving at-fault international drivers in Queensland 2003-2016

Crash Type	Crashes	%
Rear End	40	24.5
Intersection	30	18.4
Opposing Directions	29	17.8
Non-Collision On Straight	18	11.0
Miscellaneous	17	10.4
Pedestrian	13	8.0
Non-Collision On Curve	7	4.3

Table

Manoeuvring	4	2.5
Overtaking	4	2.5
On Path	1	0.6
Total	163	100.0

In terms of the injured claimants, the most common road users were passengers, followed by drivers (Table 31).

Table 31: Road user types of injured claimants resulting from at-fault international driver CTP crashes in Queensland 2003-2016

Injured road user	Claims	%
Passenger	95	44.6
Driver	76	35.7
Pedestrian	19	8.9
Motorcyclist	11	5.2
Other	6	2.8
Cyclist	3	1.4
Pillion	3	1.4
Total	213	100.0

3.5 Data issues

During the years 2006 through to 2013, the estimates of international drivers and international driver crashes were much lower than for the other years in the data (both before this time and after). Further examination of the data revealed a large proportion of 'unknown' licence type for these years, particularly 2012 (which had the lowest numbers of international drivers and riders). For these same years the licence state also had a higher proportion of 'unknown' cases. In 2013, it

seems that the state licensed variable may have contributed the most to the identification of international drivers. The details of this analysis are included in Appendix A.

It is also possible that some driver and riders may have an international licence despite living in Queensland for some time. Drivers are required to transfer to a Queensland licence if they:

- are an Australian citizen with an interstate licence and you have been residing in Queensland for 3 months
- are not an Australian citizen, but before you took up residence in Queensland you were given a resident visa and you have now been residing in Queensland for 3 months
- are not an Australian citizen, but after you took up residence in Queensland you were given a resident visa and you have now been residing in Queensland for 3 months since getting the visa⁵ (TMR, 2017).

As a result, drivers could be living in Queensland for a period of time under other types of visas (e.g., student visa, working visa) and still be allowed to drive with an international licence. It is also possible that, despite the requirement to transfer their licence once they are officially a resident, some may not have done so.

Residence was only available for a subset of casualties and drivers. This is due to the fact that some international visitors may provide an Australian address for contact about their crash and therefore would not appear as having an overseas residence in the data. As an example, only 16% of those with an 'international' licence also recorded an overseas residence. As a result, there still may be an underestimate of international driver crashes and international casualties. This is expected to have a greater influence the estimates of international road user casualties other than drivers and motorcyclists, as there are no licence fields in order to identify their international status. In addition, it is not clear whether there is any country bias for the international drivers and road users that do have an overseas address.

4 Summary

4.1 International visitors

- Queensland has around 2 million visitors each year from 2005 to 2016, with the number of international visitors to Queensland increasing by 21% in this time.
- In 2016, the top five countries of origin for visitors to Queensland were China, New Zealand, United States, Japan, and England.
- There has been a large increase in the number of visitors from China and decreases for Japan and South Korea.
- In 2016, 47.5% of visitors were male and 52.5% were female, with young people (aged 15-29) being the largest proportion of international visitors (32.8%).
- In 2016, the most common purpose of travel was a holiday, followed by visiting friends and family.

⁵ "A resident visa is a permanent visa or special category visa under the Migration Act 1958 (Commonwealth). These visas allow a person to stay indefinitely in Australia. These do not include temporary, business or guardian visas" (TMR, 2017)

4.2 International visiting drivers

- In 2016, 37.7% of international visitors reporting driving a vehicle during their stay (an increase of 17% from 2005).
- The top five countries of origin for visitors to Queensland who reported driving were New Zealand, China, England, United States, and Germany.
- Around 59% of international drivers were from left-side driving and 41% were from rightside driving countries of origin.
- In 2016, 48.6% of visitors who reported driving were male and 51.4% were female with young people (aged 15-29) being the largest proportion of international visitors who report driving (33.3%).
- The most common purpose of travel for those who reported driving was visiting family and friends, followed by holiday.

4.3 Compared to all international visitors:

- The age and gender pattern for international visitors who report driving was similar.
- The ranking of country of origin for those who reported driving was slightly different, with New Zealand being the highest, Germany being in the top five and Japan dropping out of the top five.
- A much higher proportion of visitors were visiting family and friends (40% versus 19%) and a much lower proportion were visiting for a holiday (40% versus 63%).

4.4 International visitor crashes

- There were 3,216 drivers and riders involved in crashes from 2003 to 2016 with a nonAustralian licence.
- There were an additional 133 drivers and riders involved in crashes from 2003 to 2016 that were identified as international based on their residence.
- Using both methods, a total of 3,349 international drivers and riders were involved in crashes in the from 2003 to 2016.
- There were 3,042 injuries as a result of crashes involving an international driver or rider.
- There were 2,099 injuries to international road users.
- The number of total casualties in Queensland has decreased by 10% from 2003 to 2016.
- Casualties resulting from international driver crashes decreased by 12% from 2003 to 2016.
 - International road user casualties decreased by 36% from 2003 to 2016.
- There has been a 9% reduction in the number of drivers and riders involved in crashes in Queensland from 2003 to 2016.
- For international drivers involved in crashes, there was a 16% reduction from 2003 to 2016.

4.4.1 International crash characteristics

- The following characteristics were the most common (see Table 18) for both international and non-international crashes:
 - Medical treatment
 - Angle
 - Multi-vehicle
 - Intersection
 - No traffic control
 - 60 km/hr and lower speed zones

- Major Cities
- Day time
- Weekdays
- Compared to crashes not involving an international driver, crashes involving an international driver were more likely to be:
 - Medical treatment crashes
 - Angle
 - Overturn
 - Head-on
 - Multi-vehicle
- They were also more likely to occur:
 - in locations with traffic control
 - in 100-110 km/hr speed zones
 - in Outer Regional, Remote, and Very Remote locations
 - during the day
- The patterns for month of year, day of week, and time of day were similar for international and non-international crashes

4.4.2 Driver/rider characteristics

- The following characteristics were the most common for both international and noninternational drivers involved in crashes:
 - Male
 - Aged 25-59
 - Light passenger vehicle drivers
 - Driving vehicles registered for private use
- Compared to non-international drivers involved in crashes, international drivers involved in crashes were more likely to be:
 - Aged 17-24
 - Riding a moped
 - Driving a rental vehicle
 - Carrying passengers
 - Most at fault
- Specifically, unlike non-international drivers, the majority of international drivers were carrying passengers and were deemed most at fault.
- For international drivers, the contributing circumstances of 'turn in face of oncoming traffic', 'disobey give way sign', 'fail to give way' were ranked higher than for the non-international drivers.
- Compared to non-international drivers, international drivers were more likely to be assigned the following contributing circumstances:
 - Fatigue
 - Violation of road rules
 - Road conditions
- International drivers were less likely to be assigned contributing circumstances of:

- Alcohol
 - Speed
 - Inattention
 - Follow too closely
- Country of origin was recorded for 16% of the identified international drivers.
 - The top five countries of origin were New Zealand, United States, England, Germany, and Switzerland.
 - For those where country of origin was recorded, 56% were from right-side driving countries and 44% were from left-side driving countries.
 - Compared to all international visitors who reported driving, males were over-represented in crashes, as were young drivers and visitors from right-side driving countries.
 - While the majority of international road user casualties were restrained, when examining just the known restraint use cases, the non-wearing rate was 6%. This is higher than both the casualties resulting from international driver crashes (4.6%) and the casualties resulting from non-international driver crashes (4.0%).

4.4.3 Crash characteristics (left hand side versus right hand side international drivers)

- The following characteristics were the most common for both left and right side international crashes:
 - Hospitalisation
 - Angle
 - Multi-vehicle
 - Intersection
 - No traffic control
 - 60 km/hr and lower speed zones
 - Day time
 - Weekdays
- However, compared to crashes involving an international driver from a left hand side driving country, crashes involving an international driver from a right side driving country were more likely to be:
 - Angle
 - Head-on
- They were also less likely to be rear-end crashes.
- They were also more likely to occur in Inner Regional, Outer Regional, and Very Remote locations.

4.4.4 CTP claims for crashes involving at-fault international drivers

- In total from 2003-2016, there have been 163 crashes involving a CTP claim against an at-fault international driver.
- The number of crashes involving a CTP claim against an at-fault international driver has decreased from 2003-2016.
- There were 213 injured claimants involved in these crashes.
- The majority of at-fault international drivers were male, with the most common age group being 25-59 years

- The most common vehicle type driven by the at-fault international driver was a hire vehicle, followed by a private car/sedan
- The most common crash type was rear-end, followed by intersection crashes and vehicles in opposing directions
- In terms of the injured claimants, the most common road users were passengers, followed by drivers

5 Further analysis

Further analysis will/may be conducted throughout the course of the project, including:

- Mapping of international crashes in Queensland

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Appendix A

Table A.1: Unknown licence type

Licence type	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Unknown	2.5%	2.5%	2.4%	4.5%	6.3%	6.3%	6.7%	6.7%	6.3%	31.4%	13.1%	5.1%	5.0%	5.6%

Table A.2: Unknown licence state

Licence state	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Unknown	3.4%	3.5%	3.4%	5.4%	6.8%	6.6%	6.8%	6.0%	5.6%	9.1%	4.4%	2.1%	2.5%	2.9%

Table A.3: Licence type

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Open	75.5%	74.8%	74.7%	73.3%	71.0%	70.7%	72.8%	73.2%	73.7%	53.3%	69.0%	75.3%	76.0%	75.7%
Provisional	14.0%	14.0%	14.2%	13.9%	14.8%	14.0%	11.8%	12.2%	12.1%	8.7%	10.7%	11.4%	11.2%	11.4%
Learner	2.2%	2.0%	1.8%	1.7%	1.7%	1.6%	2.0%	1.8%	1.9%	1.5%	1.4%	1.3%	1.3%	1.3%
Non-Australian	1.2%	1.3%	1.3%	0.8%	0.4%	0.6%	0.7%	0.6%	0.6%	0.3%	0.4%	0.0%	0.0%	0.0%
Unknown	2.5%	2.5%	2.4%	4.5%	6.3%	6.3%	6.7%	6.7%	6.3%	31.4%	13.1%	5.1%	5.0%	5.6%
Cancelled; disqualified	1.3%	1.6%	1.8%	1.6%	1.9%	2.4%	2.1%	1.7%	1.1%	1.2%	1.3%	2.4%	1.9%	1.8%
Expired	0.4%	0.4%	0.3%	0.4%	0.3%	0.4%	0.4%	0.4%	0.5%	0.3%	0.3%	0.6%	0.4%	0.4%
Never held a licence	0.5%	0.5%	0.5%	0.6%	0.5%	0.5%	0.4%	0.3%	0.3%	0.2%	0.2%	0.0%	0.0%	0.0%
Inappropriate class	0.2%	0.2%	0.2%	0.1%	0.2%	0.3%	0.2%	0.2%	0.4%	0.2%	0.2%	0.0%	0.0%	0.0%
Not applicable	1.5%	1.7%	1.8%	2.1%	2.1%	2.3%	2.2%	2.2%	2.3%	2.2%	2.6%	2.9%	3.1%	3.0%

Unlicensed 0.8% 0.9% 0.8% 0.9% 0.9% 0.9% 0.8% 0.8% 0.9% 0.7% 0.8% 1.0% 1.0% 0.9%

59

Table A.4: Licence state

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
QLD	90.4%	89.7%	90.3%	90.0%	89.9%	89.4%	89.3%	90.0%	90.4%	87.7%	89.6%	91.4%	91.1%	91.2%
OS	1.3%	1.4%	1.3%	0.8%	0.4%	0.7%	0.7%	0.7%	0.6%	0.4%	1.4%	1.5%	1.5%	1.2%
UNK	3.4%	3.5%	3.4%	5.4%	6.8%	6.6%	6.8%	6.0%	5.5%	9.1%	4.4%	2.1%	2.5%	2.9%
NSW	1.9%	2.1%	1.8%	0.9%	0.5%	0.5%	0.5%	0.7%	0.7%	0.3%	1.0%	1.2%	1.0%	1.0%
ACT	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
VIC	0.8%	0.9%	0.8%	0.4%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.5%	0.4%	0.3%	0.3%
TAS	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%	0.0%
SA	0.2%	0.2%	0.1%	0.1%	0.1%	0.1%	0.0%	0.1%	0.1%	0.0%	0.1%	0.1%	0.2%	0.1%
WA	0.2%	0.2%	0.2%	0.1%	0.1%	0.1%	0.1%	0.1%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%
NT	0.2%	0.2%	0.2%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
NA	1.5%	1.7%	1.8%	2.1%	2.1%	2.3%	2.1%	2.2%	2.2%	2.2%	2.6%	2.9%	3.1%	3.0%

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TMR5917 DEVELOPMENT AND TRIAL OF ROAD SAFETY COUNTERMEASURES FOR INTERNATIONAL VISITORS TO QUEENSLAND

Stage 2 Analysis: Draft Interim Report



**Draft Interim Report
June 2018**

**Bonnie Ho
Ioni Lewis
Ross Blackman
Sherrie-Anne Kaye
Christopher N. Watling**



*The Centre for Accident Research & Road Safety –
Queensland
is a joint venture initiative of the Motor Accident*





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Acronyms

4WD	4-wheel-drive
CARRS-Q	Centre of Accident Research and Road Safety – Queensland
QPS	Queensland Police Service
QUT	Queensland University of Technology
UK	United Kingdom



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1 Background and Aims

In 2004, a review of international visitors' involvement in road crashes on Australian roads was conducted by the Centre of Accident Research and Road Safety - Queensland (CARRS-Q) at Queensland University of Technology (QUT). The study suggested that the factors which contributed to crashes involving international visitors appeared to relate to issues associated with driving in unfamiliar situations. To the extent that crash involvement of international visitors may be due to a rather distinctive collection of factors, such findings suggest that there would be benefit in devising countermeasures to specifically target improving road safety for international visitors to Queensland.

The current project aims to not only update but also extend upon the findings from the 2004 study by addressing some of the limitations of the previous study and also by providing evidence to inform the design of a range of education-based countermeasures relating to road safety for international visitors to Queensland. This project consists of three phases.

Phase 1 comprised an update of findings from the 2004 study that investigated the involvement of international visitors in road crashes. Specifically, a literature review was conducted to complement ongoing data linkage and analysis to identify characteristics and trends of international visitors, their reported crash involvement, as well as the types of travel they undertake within Queensland.

Findings from Phase 1 helped to inform research tasks undertaken in Phase 2, where qualitative interviews with international visitors (Task 7a) and experts in road safety issues relevant for international visitors (Task 7b) were conducted. The aim of Tasks 7a and 7b was to identify road safety issues as well as preferred and/or potential communication channels for disseminating road safety messages to international visitors to Queensland. Phase 2 also involves a third task (Task 7c), where a desktop comparative review of road rules in Queensland and other countries was conducted to identify key regulatory differences. The current interim report presents the descriptive and key results from Phase 2 of the project and, thus, results from tasks 7a, 7b, and 7c.

Sch.4, Part 4, s.4(1)(a)

Qualitative interviews for Tasks 7a and 7b have recently been completed and this interim report provides an overview of demographic details about the participants who were interviewed, as well as an overview of key themes and comments that have emerged from the interviews. The current report will also discuss findings from Task 7c to provide insight regarding differences in road rules between Queensland and a selection of countries based on discussions that emerged in Phase 1 and Phase 2 (Task 7a) of the project.

2 Task 7a: Interviews with international visitors

2.1 Method

2.1.1 Participants

Overall, participants comprised 54¹ international visitors (32 males and 22 females) from 18 countries. All participants were required to, at the time of the study, be international visitors who were staying in Australia for under 12 months, and have driven a vehicle during their current stay in Australia. Consistent with the participation criteria, participants' date of arrival to Australia ranged from late May 2017 to early May 2018. The majority of participants were younger drivers between the age of 18 and 30 years, and most were visiting Australia for holiday and/or employment (on a working holiday visa). Most participants were visiting Australia for the first time (76%), and of those who have previously visited the country, only 3 people reported to have driven in Australia during their preceding visit. Table 1 presents the socio-demographics characteristics of the overall sample.

Table 1. Socio-demographics characteristics of overall sample for Task 7a

Characteristic	N (%)
Gender and Age	32 males (59%) and 22 females (41%) <i>M</i> _{age} = 25.04, <i>SD</i> = 14.29, Range = 18 to 66 years
Purpose of visiting Australia*	Holiday = 53 Visiting friends and relatives = 5 Business = 0 Employment = 47 Education = 2 Other = 0
Visited Australia previously	Yes = 13 (24%; and of these international visitors, 3 had previously driven in Australia) No = 41 (76%)
Intended duration of stay	<i>M</i> _{stay} = 10.88 months, <i>SD</i> = 7.34 Range = 1 week to 24 months [#]
Main language spoken at home	English = 27 (50%) Mandarin/Cantonese/Other Asian = 2 (4%) German/Other European = 21 (39%) Other = 4 (7%)

* Participants were asked to select all the options that applied for reasons they stayed, thus multiple options were selected at times (e.g., a participant can be a holidaying and working at the same time).

[#]Some participants said that they had tentative plans to extend their stay beyond 12 months, depending on factors such as work and visa requirements.

¹ A total of 55 participants had been interviewed, however, the interview responses from one participant was not included in the analysis as not all required participant forms had been completed.

Table 2 presents participants' countries of origin, according to driving side. Approximately 44% of participants indicated that they were visiting from a left-side driving country, while 56% participants were from a right-side driving country.

Table 2. Participant numbers for Task 7a as a function of left- and right-driving side countries

Driving side	Country of origin	Total
Left-side driving countries	United Kingdom (including England, Wales, Scotland, and Northern Ireland) = 23 Japan = 1	24 (44%)
Right-side driving countries	Germany = 8 Sweden = 5 Israel = 3 United States = 2 Canada = 2 France = 2 Netherlands = 2 Albania = 1 Brazil = 1 Chile = 1 Denmark = 1 Italy = 1 China = 1	30 (56%)
Total		54 (100%)

Recruitment involved members of the research team visiting known tourist regions and locations around Queensland (informed from tourism data). The first location was the Gold Coast where the researchers were stationed in a booth in open-air locations known often to be frequented by international visitors (e.g., beachfront promenade). In the second data collection location, Bundaberg, recruitment was conducted within backpacker hostels. In the third location, Cairns, participants were recruited from a range of backpacker hostels and transport hubs. Local Queensland Police Service (QPS) personnel in Bundaberg and Cairns were able to assist the research team in identifying relevant venues.

Rather than aiming to interview certain numbers of participants from particular countries, the recruitment approach aimed for a representation of visitors from Asia, North and South America, and Europe, seeking a mix of nationalities within these broader groups for participation. All participants received AUD\$20 cash as an incentive for participating in an interview, and those recruited at backpacker hostels were also provided with complimentary refreshments during and/or after the interviews. Regarding the response rate and prevalence of driving among those invited to participate, owing to the vast numbers of international visitors approached within the limited time at the study locations, it was not possible for researchers to record the exact number of international visitors who were approached to participate, and whether or not they had driven during their stay in Australia.

In Stage 1, the statistical analysis of international drivers in Queensland, the top ten countries of origin for visitors to Queensland who reported driving were (in order from most to least): New Zealand, China, England, United States, Germany, Japan, South Korea, Singapore, Taiwan, and Canada; and, approximately 59% of international drivers were from left-side driving countries and 41% were from right-side driving countries. The sample of participants recruited for the interviews in Stage 2 provided a fairly even representation of drivers from left-side (44%) and right-side driving countries (45%) that resembled the proportions identified in Stage 1. Although the current sample included a number of visitors from Europe, there were relatively fewer visitors recruited who were from Asia, as well as North and South America. Of the top ten countries of origin for visiting drivers to Queensland, visitors from England (and the United Kingdom) and Germany were well represented; while there was limited representation of visitors from the United States, Canada, China and Japan. In terms of gender, the findings from Stage 1 indicated that approximately 49% of visiting drivers in Queensland were males and 51% were females. The sample of participants recruited in Stage 2 provided a good representation on the basis of gender with, 59% of visiting drivers identifying as male and 41% as females. The age of visiting drivers in Queensland was also well represented in Stage 2. The findings from Stage 1 indicated that younger people (aged between 15 and 29 years) tended to be the highest proportion of age group (33%) who reported to have driven in Queensland. And similar to the Stage 1 results, the majority of participants recruited in Stage 2 were younger drivers aged 18-30 years ($M_{age} = 25.04$ years, $SD = 14.29$ years).

2.1.2 Consultation protocols

2.1.2.1 Demographics survey

A self-report survey was used during the interviews to confirm that participants met the required study criteria and thus were eligible to participate. The survey also collected basic demographic details. The brief demographic survey was verbally administered before progressing with questions from the interview schedule.

2.1.2.2 Interview schedule

3 A semi-structured interview schedule was designed to guide interview discussions (see References

Reyner, L. A., & Horne, J. A. (1998). Evaluation "in-car" countermeasures to sleepiness: Cold air and radio. *Sleep, 21*(1), 46-50.

Schwarz, J. F., Ingre, M., Fors, C., Anund, A., Kecklund, G., Taillard, J., . . . Åkerstedt, T. (2012). In-car countermeasures open window and music revisited on the real road: popular but hardly effective against driver sleepiness. *Journal of Sleep Research, 21*(5), 595-599.

Appendix A). The interview schedule comprised three sections: (i) transport modes that international visitors use in Queensland; (ii) planning and preparation; and (iii) perceived difference in road rules and driving environments between Queensland and an individual's home country.

Although the interview schedule was designed to facilitate discussions about road safety and driving in Queensland, researchers extended the questions during interviews to relate to all of Australia given that all participants, with the exception of the few who had only visited Queensland, referred to experiences in other States and Territories. The distances that many of the participants had travelled was also highly relevant (e.g., they sometimes drove from one end of the country to the other). Some had initially driven in other States and Territories, thus they had already accumulated some (or even substantial) experience before arriving in Queensland. Additionally, participants often referred to road safety-related experiences only in other States and Territories (e.g., cycling only in Melbourne, and not elsewhere).

3.1.1.1.1 Transport modes that international visitors use in Queensland

In the first section of the interview, transport modes that international visitors use in Queensland, questions first explored driving experience in terms of the types of vehicles used, reasons for choosing the vehicles, previous experience with the particular vehicles driven, and the origin of the vehicle (e.g., whether it was rented or borrowed from a family/friend). Questions in the first section of the interview also investigated the duration and frequency of vehicle use, locations and distances travelled within the vehicles, and any incidents, near-misses or crashes experienced whilst driving. Similar questions were also posed to explore international visitors' experiences as a pedestrian and cyclist (

Table 3). A list of vehicle types accompanied by pictures was included in the interview as an aid to overcome language barriers (see Appendix A).

Table 3. Constructs in interview schedule exploring international visitors' experiences as a driver, pedestrian, and cyclist

Construct	Experience as Driver	Experience as Pedestrian	Experience as Cyclist
Type of vehicle used (e.g., car, 4-wheel-drive, campervan)	✓		
Reason for method of travel	✓	✓	✓
Previous experience with vehicle	✓		✓
Origin of vehicle (e.g., rented or borrowed from family/friend)	✓		✓
Duration and frequency of travel method	✓	✓	✓
Locations and distances travelled	✓	✓	✓
Incidents, near-misses and/or crashes	✓	✓	✓

3.1.1.1.2 Planning and preparation

Questions were included to explore what planning and preparation international visitors took, if any, with regard to driving in Australia. The interview schedule also included questions about the resources that they had accessed to learn about Australia's road rules and driving environments, and to identify strengths, limitations and gaps in educational resources available to international visitors. As part of their



planning and preparation, the interview schedule also explored the steps international visitors may have taken to familiarise themselves with their vehicle and driving environment, as well as any road safety issues that had not been anticipated during the planning and preparation stage.

3.1.1.1.3 Perceived difference in road rules and driving environments between Queensland and home country

In the third section, the interview schedule explored differences that international visitors experienced as drivers in terms of road rules and driving environments between Queensland and their country of origin. Similarly, another question explored perceived differences in relation to participants' experiences as a pedestrian and cyclist. Finally, a question was included to facilitate discussion regarding the strategies that participants have used to stay safe on Australian roads, and another to invite general comments in relation to road safety issues for international visitors.

3.1.2 Procedure

Prior to any research being conducted, QUT Ethics Approval was obtained (QUT Ethics Approval Number 1800000017). For researchers to conduct interviews in premises and locations that are well-frequented by international visitors, approvals were gained from the Council of the City of Gold Coast, owners and/or operators of backpacker hostels, as well as management operators of transport hubs and terminals. Interviews at the three locations (i.e., Gold Coast, Bundaberg and Cairns) were facilitated by the same two members of the research team, and data was analysed during the process of data collection to monitor data saturation (i.e., the point at which it appears that no further new findings are emerging and similar information is being reported).

Each interview was approximately 15 to 20 minutes in duration, and all interviews were audio recorded. Participants were provided detailed information about the interviews and consent was obtained at the beginning of the interview. Participant information sheets and consent forms were available in English, simplified and traditional Chinese, Japanese, Korean, French, and German; and participants were also verbally informed that their participation was voluntary, their responses would be kept confidential and made anonymous when results are reported.

3.2 Interview discussions

This section presents findings from interviews conducted with international visitors in the Gold Coast, Bundaberg, and Cairns. Please note that, as many international visitors have already travelled to other States and Territories within Australia, their responses related mainly to their experiences within Australia as drivers, cyclists (for some who had cycled), and pedestrians. As noted previously, interview discussions with international visitors related to their experiences as a driver, pedestrian and cyclist; issues of familiarity with their vehicle (as a driver and cyclist), incidents and near-misses; steps taken in terms of preparing for driving and road safety in Australia, as well as educational resources and materials that have been accessed; perceived differences in road rules, traffic environment and conventions; and finally, strategies that have been employed by international visitors to stay safe on Australian roads.

Although differences in road rules, driving environments, and traffic culture were identified by the majority of participants across countries, it was apparent that the differences experienced by those from right-side driving countries were more pronounced when compared to those from left-side driving countries. As a more in-depth investigation of the contrast between the experiences of participants from

left- and right-side countries, this section presents findings predominantly in accordance with whether an international visitor was from a left- or right-side driving country.

3.2.1 Transport modes that international visitors use in Australia

3.2.1.1 Experiences as a driver

3.2.1.1.1 International visitors' use of vehicles

As part of the participation criteria, all participants had driven a vehicle during their current stay in Australia. Of the 54 international visitors who were interviewed, 37% said that they had only driven one vehicle, while almost half (46%) said that they had the experience of driving two different vehicles while in Australia. Only a small number of participants (15%) said they had driven three vehicles during their trip, and only one participant had driven four vehicles. Of all vehicles that participants had driven during their current trip, most vehicles were rented (46%), while some were cars, mini-buses or vans supplied by an employer, hostel or host parents² (26%), some were vehicles borrowed from a friend or relative (14%), and some were owned by the participants (14%). Of the participants who said they had rented a vehicle, the majority (73%) were planned rentals. Of note, the majority of participants interviewed said that they had not planned on driving. However, it appears that once they had made the decision to drive in Australia, they proceeded with the planning of the rental of a vehicle.

In relation to crash data, Stage 1 analysis indicated that, compared to non-international drivers, the majority of international drivers involved in crashes were more likely to be younger drivers aged between 17 to 24 years, riding a moped, driving a rental vehicle, and carrying passengers. Again, the sample in Stage 2 provided a fair representation of visiting driver characteristics identified in Stage 1, as most were younger drivers. Many had driven a rental vehicle, or a vehicle that they did not personally own (e.g., a vehicle borrowed from friends or work), and had reported that they had carried passengers. Relatively fewer participants, however, reported to have ridden a moped; thus representation visiting drivers who operated a moped is limited in the current sample.

As presented in Table 4, the most popular types of vehicles driven by international visitors were cars (i.e., sedan and hatchbacks) and 4-wheel-drives (4WDs). Many international visitors said that they had chosen to rent cars and 4-wheel-drives as a means of travelling interstate (e.g., from the Great Ocean Road/Melbourne to Brisbane, or from Sydney to Brisbane) and along the coast of Queensland (e.g., from Brisbane to Cairns). These vehicle types were chosen, according to most participants, because they offered convenience, comfort, capacity to carry passengers and luggage, as well as safety for travelling greater distances. A number of participants said that they had decided to rent a car or 4WD because they were a more affordable option when the cost is shared among the travellers on board, compared to each person paying for public transport. Many participants also said that they had rented a 4WD as part of a 'tagalong tour', whereby they drove and followed other travellers in 4WDs led by a tour guide in off-road locations such as Fraser Island and Magnetic Island. In terms of patterns and frequency of usage, participants tended to drive a car on a regular basis (i.e., daily for several months, or a few days per week).

² In Australia, an Au Pair is a person visiting from overseas to improve their English, and invited by an Australian family to live with them as a member of their family. Au Pairs often work for the family to provide childcare and household support in exchange for a small allowance, accommodation and meals. During interviews, participants who were Au Pairs often referred to the parents of their host family as 'host parents'.

Most participants who had driven a 4WD tended to use the vehicle from 1 to 3 days (mostly to travel on off-roads locations or in tagalong tours), while some participants used 4WDs as a means of regular travel.

Owing to the high number of participants who were spending a working holiday and staying at backpacker hostels, many said that they had also driven a van or mini-bus for work purposes. According to participants, these vans and mini-buses were typically driven on a daily or regular basis (e.g., a few days per week) to transport backpackers between the hostel and farms.

Some international visitors said that they had rented a campervan as a means of travel because it also offered affordable accommodation. Most of these participants had driven their campervan for approximately one month. Two international visitors said that they had used a campervan for only several days.

Of the participants who had driven a motorcycle or moped, two said that they had bought their vehicles, while several indicated that they had rented the vehicle. Two participants said that they had chosen to rent a motorcycle for fun and enjoyment (e.g., to enjoy the ride along the Great Ocean Road), and had rented their vehicles from one to two days. Two participants said that they had chosen to ride a moped/scooter for ease of use, access, and the lower costs involved when compared to other vehicles types. One participant had bought a motorcycle for work purposes (i.e., to work as an Uber Eats driver).

Table 4. The number of vehicles driven by international visitor participants as a function of vehicle type and origin (during their current stay in Australia)

Origin of vehicle	Number of vehicles driven during current stay in Australia					
	Moped / Scooter	Motorcycle	Car	4WDs	Van / Mini-bus	Campervan
Bought	1	1	8	6	1	0
Borrowed	0	0	5	2	0	0
Work vehicle	0	0	10	2	11	0
Rented	1*	2	15	15	0	7
Total vehicles	2	3	38	25	12	7

*Moped

3.2.1.1.2 Experience with the types of vehicles driven in Australia

3.2.1.1.2.1 Cars

Of the 54 international visitors who participated in an interview, 34 international visitors said that they had had the experience of driving a car during their current stay in Australia. Almost all of these participants said that they had previously driven a car in their home country (i.e., the majority of these participants were not novice drivers). The years of experience with driving a car ranged from less than 6 months (i.e., newly licensed) to 29 years ($M = 5.65$, $SD = 5.63$, $Median = 4.00$ years).

3.2.1.1.2.2 Larger vehicles: 4WDs, mini-bus, van and campervan

Of the 44 participants who said they had driven a larger vehicle (i.e., a 4WD, mini-bus, van or campervan) during their current stay in Australia, 35% of participants said that they were experienced in driving a larger vehicle. Their experience with driving a larger vehicle ranged from 2 weeks to 7 years ($M = 4.19$, $SD = 2.51$, $Median = 4.00$). Among those who had driven a larger vehicle during their current visit, 63% of participants said they were driving a larger vehicle for the first time, and had no previous experience with driving a larger vehicle outside of Australia. Many of these inexperienced participants ($n = 16$) said they were driving a 4WD for the first time, some backpackers ($n = 9$) said they drove a van or mini-bus for the first time owing to work requirements, and a small number ($n = 4$) said that they had driven a campervan for the first time.

3.2.1.1.2.3 Motorcycles, mopeds and scooters

Of the five participants who had driven a motorcycle, moped, or scooter, all but one indicated that they had experience in riding the same or similar type of vehicle previously ($M = 6.00$, $SD = 1.87$, $Median = 6.50$). Only one participant said that he had no experience with riding a moped, but had only used the vehicle for a short period of time (i.e., one day).

3.2.1.1.3 Issues of familiarity with vehicle

3.2.1.1.3.1 Similar issues experienced by participants from left- and right-side driving countries

In equal proportions, many participants from both left- and right-side driving countries, said that they experienced no issues of unfamiliarity with the vehicles they had driven. However, of those who said they had experienced issues of familiarity, participants frequently mentioned issues with the position of the vehicle indicators and wipers being switched in the vehicles they had driven, such that they often turned on wipers (rather than indicators) when driving. The issue of indicator position, of note, was mentioned by double the proportion of participants from left-side driving countries compared to those who are accustomed to driving on the right side (note that some cars sold in Australia have indicator controls on the left of the steering column).

"I kept putting on my windscreen wipers every time I needed to turn. It took me ages to work out where the indicator was." England, Female, 22

Several international visitors from across both left- and right-side driving countries said that they were accustomed to driving a manual vehicle at home, and needed some time to adjust to driving an automatic vehicle; although several participants did note that they had intentionally chosen to drive an automatic vehicle in Australia because it required less coordination (and therefore offered a higher level of safety).

A small number of participants from across left- and right-side driving countries said that they had limited or no recent driving experience (i.e., either being a novice driver or not having driven a vehicle for 1 to 3 years).

3.2.1.1.3.2 Differences between left- and right-side driving countries

Some international visitors from right-side driving countries said driving on the right side of the vehicle was initially an issue. They were accustomed to driving on the left side of the vehicle, and owing to the change in position and perspective, they tended to automatically swerve/tilt towards the left side of the

lane. According to these participants, they tilted their vehicle to the left because they had a habit of re-positioning their vehicle to the centre of the lane, or correcting their vehicle's positioning within the lane as would be correct if they were driving within a right-side driving jurisdiction. This pattern was also observed by several international visitors from left-side driving countries who shared vehicles with travel companions from right-side driving jurisdictions.

Of the participants from right-side driving jurisdictions who had chosen to drive a manual vehicle in Australia, several said that they had automatically expected the gearstick to be found on the right side of the vehicle and, while driving, had mistakenly searched for the gearstick with their right hand, rather than left (and hit the window or door instead). According to these participants, these issues created a distraction, which posed some risks when driving in an already unfamiliar environment.

"The only thing is the stick. It's on a different hand, but it is fine. Sometimes you just smash the door instead." – Sweden, Female, 20

3.2.1.2 Experiences as a pedestrian

Most frequently, participants from both left- and right-side driving countries said that they tended to walk within urban areas and towns (i.e., Sydney, Melbourne, Brisbane, Cairns and Bundaberg) on a daily basis for leisure (e.g., sight-seeing) and as a means of transport.

Across countries of both driving sides, approximately 70% of participants said that they had experienced an issue or incident as a pedestrian in Australia. The most frequent theme that emerged from those who had identified an issue or incident as a pedestrian, was the issue of traffic lights at pedestrian crossings. The majority of participants from both left- and right-side driving countries noted that often, in the process of crossing the road at the sign of the green figure of a traffic light, vehicles are also given the green light/signal to proceed. Many participants said that they were confused as to whether or not they were allowed to cross; while several perceived the incident as a near-miss, they said that they were almost hit by the turning vehicles or that the vehicles were intending to run over them, and expressed feelings of shock and fear.

"The green light is confusing... both pedestrian and cars can go at the same time. Cars will wait, but will go right up to you before stopping. It doesn't feel safe."
– England, Male, 30

Numerous participants from both left- and right-side driving countries said that the pedestrian traffic lights were quite slow to activate after pressing the button in Australia, which prompted motivations to jaywalk (or cross against the signal). In relation to jaywalking, some participants noted that they were not aware that jaywalking is illegal in Australia until they were informed by friends or other road users. One participant from Wales said that he was almost involved in a crash because he was jaywalking across the road, and explained that he found the traffic lights in Australia different and confusing; and thus lacked the ability to predict the timing of the traffic lights for the vehicles to accurately work out when it was

safe for pedestrians to cross. On the issue of pedestrian traffic lights, some participants from left- and right-side countries also said that they found the red flashing man confusing and anxiety provoking, were unsure whether they still had the right to cross, and often felt the urge to hurry/run across the road to finish crossing. These participants explained that, in their country of origin, the green (rather than red) man would flash and the message they perceived from the flashing green light was that it was time to finish crossing the road. As the colour red is interpreted as 'stop' and green symbolised 'go', a flashing red man sent a confusing cue that a pedestrian should have already finished crossing the road (rather than the intended message that pedestrians should not start crossing the road). One participant had noted, however, that the countdown positioned above some pedestrian lights was helpful because it indicated the amount of time left until the lights would turn red again. Inconsistency of signals across locations was also noted.

A number of participants from right-side driving countries said that they were unfamiliar with looking right first when crossing the road. In particular, one participant noted a near-miss incident where, out of habit, he had looked left before crossing the road and was almost hit by a vehicle approaching from his right. Some participants said that they had adjusted after a period of time, while several said they were still somewhat confused and had not adjusted to looking right, and as a solution would look both ways before crossing the road.

The theme of convention among drivers on Australian roads emerged consistently across participants from left- and right-side driving countries. Some participants across left- and right-side driving countries commended drivers for their courteous, orderly and respectful behaviours towards pedestrians. On the other hand, a number of pedestrians from countries of both driving sides had commented on driver behaviours that they perceived as being negative. It is not possible to determine whether there were any particular locations where international visitors believed they had experienced driver aggression as it was not an aspect explored further during the interviews. Some participants from right-side driving countries and two from left-side driving countries said they were uncertain whether pedestrians have the right of way in Australia, as they had experienced occasions where they stepped onto the road to cross (and expected cars to stop as was the convention in their countries), but realised that drivers had no intentions to stop. Several participants from across left- and right-countries said that they worried about their personal safety as pedestrians because of road rage, aggressive driving and threats from drivers.

"In France, cars will stop if there are people on the road. In Australia, I feel like cars will hit me." – France, Male, 29

Some participants from across left- and right-side driving countries said that they felt unsafe on pedestrian footpaths. In Burdaberg, several participants from England said that they felt unsafe when they had to walk on the road (in places where there were no footpaths) and had encountered vehicles that were speeding or were driving too closely to them. One participant from a left-side driving country said that he was afraid of being knocked over as fast-paced bicycles and electric scooters drove too closely to him on the boardwalks of the Gold Coast. Several participants from countries of both driving sides also commented about feeling unsafe on footpaths with poor lighting, inadequate markings, and a lack of continuity (and thus had to share the road with vehicles).

3.2.1.3 Experiences as a cyclist

Some participants from right-side driving countries and several from left-side driving countries said they had ridden a bicycle in Australia and most cycled for general leisure and as a method of commuting. Most of these participants cycled within city or urban areas, while two participants cycled to and/or along the beachside. Across left- and right-side driving countries, a few international visitors said that they had used bicycles from the bike-share scheme, a few said that they had rented their bicycle, and a few said that they had borrowed from a friend or family member. One participant from a left-side driving country said that she worked as a food delivery rider and her bicycle was supplied by her employer.

Overall, most participants across countries of both driving sides said that they did not experience any issues or incidents while cycling. Two participants from right-side driving countries (i.e., China and the Netherlands) noted that they felt somewhat unsafe riding on Australian roads because cars tended to keep too short of a distance to cyclists; and the participant from China said that he was hesitant to ride on footpaths as an alternative for the fear that he would injure pedestrians. One participant from Germany (a right-side driving country) said she lacked the knowledge regarding the direction that she should be travelling when cycling, as she was accustomed to riding against the traffic in her home country. One participant from a right-side driving country (the Netherlands) observed that there are few dedicated pathways for cyclists, and that Australian traffic was not accustomed to cyclists on the road. Several participants from right-side driving countries said that they had seen cyclists on highways, and said that they would not have been allowed to do that in their home countries. One participant from a left-side driving country said that she was annoyed at having to wear a helmet because it "looks terrible".

3.2.2 Planning and preparation

The majority of participants across left- and right-side countries said that they had researched licensing requirements and their eligibility to drive in Australia prior to leaving their home country or renting a car. Other than checking for eligibility to drive, however, it appears that most participants (from both left- and right-driving side countries) did not engage in any specific planning or preparation in terms of driving or general road safety in Australia. For some participants, as noted previously, they did not prepare because they had not initially planned to drive while in Australia.

Of the minority of participants who had actively researched information regarding driving safely in Australia, the Internet (e.g., Google and chat forums) appeared to be the most frequently accessed resource (for participants from across left- and right-side driving countries). Some other participants from right-side driving countries said that they had received useful verbal advice from vehicle hire agencies, and/or host parents or friends who had previously driven in Australia. Some participants from right-driving side countries who hired 4WDs (e.g., as part of a driving tour on the sand and along the beachside) found the compulsory safety induction videos shown by their tour group or hire company very helpful.

"We spoke to people who have driven in Australia and asked them for advice. They told us to be careful because it's very easy... you sit on the right side of the car... to be too close to the left side of the road... like, you can get off the road because you drive too much on the left side. You're not used to the distance."

– Sweden, Female, 20

A small proportion of participants from right-side driving countries said that they had practised with their vehicle on local and minor roads before driving on busier roads. For the several participants who were involved in an Au Pair program and had previously stayed with host families, most were from right-side driving countries. These participants said that they practised driving their host parents' vehicles within quiet streets, with their host parents as a passenger and instructor, prior to driving on busier roads. Similarly, two participants from right-side driving countries were also supervised by an employer on their first drives. Two participants from right-side driving countries (who were not driving for work purposes) also said that they had practised in a parking lot before driving on busier roads.

3.2.2.1 Educational materials and resources about road safety

When participants were asked about any road safety advice that they thought would benefit other international visitors intending to drive while in Australia, many participants from left- and right-side driving countries commented on additional experiences of unfamiliarity with the Australian road rules and driving environment. They regarded such aspects as important for other visitors to know (i.e., issues, incidents and near-misses that have not been noted previously) together with tips/advice that would help others avoid these problems. Notably, these experiences had not been raised previously when discussing issues that had been problematic for them personally; rather, many participants had only revealed these new experiences (and associated tips/advice) because they believed that other international visitors may not have the capacity to manage the issues that they had encountered.

Overall, a greater proportion of participants from right-driving countries, compared to those left-driving countries (who were mostly from the UK), responded with suggestions for educational materials and resources that may be designed to improve the safety of visiting drivers; predominately owing to the similar driving systems of Australia and the UK. Of those who responded with suggestions, similar patterns of responses were made by participants from both left- and right-side driving countries.

To begin with, a large number of participants from left- and right-side driving countries made comment about the limited resources about road safety that they believed were available/accessible by international visitors. Many participants from left- and right-side driving countries suggested that (despite not necessarily having looked for any) additional resources need to be made available in various mediums including online (including websites, social media, and emails targeted at international visitors), booklets, brochures and pamphlets, and videos. In terms of channels of distributing the aforementioned materials in the various mediums participants from left- and right-side driving countries suggested for information to be passed to international visitors through vehicle rental agencies, hostels, and on airplanes. Of note, a number of participants from across left- and right-side driving countries stressed that information needed to be brief and concise. Several participants further added that, for the information to be noticed or read, brochures or pamphlets will need to be easily distinguishable from general advertising that international visitors often receive from vehicle rental agencies.

In terms of the content of information to be distributed to international visitors about road safety, most responses reflected a want for more information about road rules. Many participants from across both left- and right-side driving countries advised that information about road rules in Australia that are different to other parts of the world should be made available to international visitors. In particular, two participants from left-side driving countries, and many participants from right-side countries said that international visitors should be educated about keeping left on the road. Some participants from right-

side driving countries further said that it was important for international visitors to be mindful of keeping left particularly in intersections, and to keep their vehicle centred within the lane when driving. Some participants from right-side driving countries and two from left-side driving countries suggested that there was a need for international visitors to be educated about rules for driving in roundabouts (e.g., the need to indicate when entering and exiting, as well as the requirement to travel clockwise). Some participants from across both left- and right-side countries said that the meaning of Australian road signs, as well as the importance of following road signs, should be communicated with visiting drivers. However, most participants appeared to find signage clear and adequate in general. Two participants said that international visitors need to be informed about the fines associated with parking of vehicles against the direction of traffic. Two participants from left-side driving countries and several from right-side countries also said that, to help international visitors as pedestrians, reminders were needed for them to look for oncoming traffic from the right before crossing the road.

Some participants from left-side driving countries and several participants from right-side driving countries also suggested that international visitors need to be informed about speed limits and the associated penalties designed to deter drivers from speeding. A small number of participants across left- and right-side driving countries said that international visitors needed to be advised that they may be driving long distances in the country, so that they may have fatigue management plans in place (e.g., planning their journey ahead and factoring in rest breaks, ensuring sufficient food and water supply, and alternating drivers over the course of the journey). Some participants appeared to have learnt this quickly from their own experience.

Some participants from left-side driving countries and two from right-side driving countries advised that international visitors should be warned and/or reminded about potential distractors of driving while in Australia, and given tips as to ways they may avoid distractions. The use of mobile phones for navigation purposes, for example, was raised by several participants from countries of both driving sides as being a distractor because of factors such as disruptive message alerts, inaccuracies in navigation apps (i.e., Google maps), and limited wireless network reception in rural areas.

Several participants from left-side driving countries and some from right-side driving countries mentioned the need to alert international visitors to threats presented by the natural environment in Australia such as wildlife, flood waters, and extreme climates.

3.2.3 Perceived differences in road rules and driving environments between Australia and home country

3.2.3.1 *Perceived differences in road rules as a driver*

In terms of driving, many participants from both left- and right-side driving countries commented on differences in road rules pertaining to speed limits, deterrents, and traffic lights between Australia and their home countries. First, issues regarding speed limits were often mentioned by a number of participants from left- and right-side driving countries. Some participants across left- and right-side driving countries said that the speed limits in Australian roads and highways are different to that at home, and that they initially needed time to adjust. Several participants from Germany (a right-side driving country) explained that, in their home country, it was the convention for drivers to exceed the speed limit as the fines of doing so are not that significant. Further, they needed to be particularly careful when driving on

Australian motorways, as they were used to driving in higher speeds on autobahns in Germany (i.e., federal motorways that have no mandated speed limits for some classes of vehicles). Participants from other left- and right-driving countries have also made similar comments, in that speed limits tended to be higher in their home countries. From across countries of both driving sides, a number of participants also said that they were aware of stronger deterrents in Australia in relation to speeding, including the frequent presence of speed cameras, police, and expensive fines, which encouraged them to drive under the speed limit.

Second, many participants said the traffic fines in Australia were much more expensive than in their home countries, which they said encouraged them to abide by the speed limit. A few participants from left- and right-side driving countries also said that they appreciated the road signs in Australia. Some participants from right-side driving countries said they often did not know the standard speed to travel in certain areas, and appreciated the guidance that frequent speed signs offered. Several participants from the UK (i.e., left-side driving countries) said that frequent speed limit signs eliminated the need for them to calculate the speed they were travelling through converting miles to kilometres per hour whilst driving. Several participants from right-side driving countries said that they encountered many sharp corners and curves on Australian roads, and speed signs (including advisory signs) were helpful in providing them with a safe speed to turn.

"Speed limits are different. Highways are 130km/h in Denmark, while country roads are 80km/h and town roads are 50km/h." – Denmark, Male, 21

"The speed limits are lower on highways in Australia." – North Ireland, Male, 29

Third, the theme of traffic lights also emerged with some participants across left- and right-side driving countries. Several participants from countries of both driving sides said that they were confused by the multiple sets of traffic lights present at intersections, and were uncertain of which lights to follow. Two participants from left-side driving countries (in the UK) said that they found the placements of traffic lights different to their home country. Two participants from Israel (right-side driving country) said that they were confused by the turn arrow on Australian traffic lights because, in their home country, all traffic followed one set of lights. Two participants from left-side driving countries said that they had not expected the sequence of the traffic lights (flashing from red straight to green), and as they were driving a manual vehicle, they felt that they did not change gears in time and may possibly have held up the traffic. These participants explained that, in their home countries, when the lights changed, the red light would switch from red to amber before turning green, which would provide drivers sufficient notice and time to change gears. One participant from a left-side driving country said that he found Australian traffic lights ambiguous, as the lights for both pedestrian and turning vehicles would flash green simultaneously. In particular, this participant said that he was unsure whether he was required to give way to pedestrians in these instances, since the lights had given drivers an indication to proceed.

With the exception of comments about speed limits, deterrents and traffic lights, participants from left- and right-side countries provided very different responses about perceived differences between road rules in Australia and their home countries. To begin with, most participants from left-driving side

countries were from the UK and said that their home countries shared a similar driving system (and therefore road rules) to that of Australia's. In contrast, participants from right-side driving countries appeared to have observed greater differences.

In particular, a number of participants from right-side driving countries noted that when they first started driving, particularly in the first several days, they were mindful of keeping left, and driving within the centre of the lane to avoid swerving off the road. Some participants from right-side driving countries said that they found 'keep left' road signs and road markings particularly helpful. Two participants from right-side driving countries noted that the fast lane was on the right, and said that they had to be mindful that vehicles should not overtake from the left lane.

When driving in roundabouts, many participants from right-side driving countries said that they had to be very careful to travel clockwise, rather than anti-clockwise. Some participants (particularly those from Germany) noted confusion about road rules relating to roundabouts, or said that they were corrected by their passengers/host parents about the need to indicate when entering roundabouts. Several participants from across left- and right-side driving countries said that, owing to the absence or limited number of roundabouts in their home countries, they possessed neither the knowledge or experience of following road rules for roundabouts.

"And we don't know at which time you indicate if you're driving in the circle (roundabout). In Germany you indicate when you drive in it, but we don't know how to do it in Australia. In Germany we don't indicate when we enter, we indicate only when we are leaving." – Germany, Female, 22

"We don't really have roundabouts. We have 4-way stops... we do have roundabouts, but rarely. Whoever gets there first can go, all the other cars to stop." – Canada, Female, 19

Some participants from right-side driving countries commented on some road rules relating to giving way. Two participants from Sweden said that they were surprised that Australia did not have the equivalent of the 'right hand rule' in Sweden, where vehicles travelling on a main road are required to give way to traffic entering from the right (unless otherwise signed). They also said that they were initially confused by the absence of the rule but adapted eventually. One participant from a left-driving country and one from a right-driving country said that they encountered the 'turn left with care' rule for the first time in Australia. Specifically, the participant from the right-driving country (Israel) said that Australia "gives credit to their drivers" because of the 'turn left with care' rule, where drivers are trusted to give way to vehicles when turning left at red lights (when signed), and to turn only when there is no traffic. In Israel, according to the participant, the rule would not have worked as drivers do not tend to give way to others. One other Canadian participant said that, in her home country, vehicles were able to turn right with care in all traffic lights (i.e., no 'turn right with care' signage are used in Canada, as it is a road rule that drivers in Canada may turn right after coming to a complete stop at a red light); and that she was not accustomed to being unable to 'turn left with care' at red lights in Australia (this participant said she has never encountered a 'turn left with care' sign in Australia).

Finally, one motorcyclist from the US (a right-side driving country) noted that the wearing of helmets is not a mandatory requirement in his home State of Colorado, but that the requirement to do so in Australia he considered as only a minor inconvenience.

3.2.3.2 *Perceived differences in the driving environment*

In light of the driving environment, a number of participants from countries of both driving sides commented about the long driving distances between major cities, towns, and popular tourist destinations. These participants said that distances between destinations tended to be shorter in their home countries, and that they had not expected to drive such long distances in Australia. Some participants from left- and right-side driving countries said that they were prone to fatigue when driving long distances. Some participants across left- and right-side driving countries said that they appreciated the countermeasures in place that helped drivers stay awake (e.g., fatigue warning signs and two-staged anti-fatigue quizzes³ along the Great Ocean Road). However, in contrast with this view, one participant from a right-driving country queried the possibility that the anti-fatigue quizzes/trivia may be a distraction for drivers.

Many participants commented on the condition of Australian roads, however, the responses differed between those from left- and right-side driving countries. Some participants from left-side driving countries (i.e., mostly comprising visitors from the UK) tended to appreciate the wider, more open, and better-quality roads (e.g., with fewer potholes) that they had driven on while in Australia, relative to those at home. In contrast, a number participants from right-side driving countries perceived Australian roads as being of poorer quality, smaller and narrower, and not as well-lit as those in their home countries. Only two participants from right-side driving countries said that the roads were wider and well-lit in Australia. Vehicles travelling in opposite directions on high speed undivided roads was noted as a disconcerting experience to some participants as it was deemed unusual according to their experience.

Some participants across left- and right-side countries also mentioned that the volume of traffic was different to that of their home countries. While some participants from left-side driving countries said that they observed lower traffic volumes in Australia (which was therefore easier/more pleasant for them as drivers), two participants from right-side driving countries said that they did not enjoy the busier traffic in some of the major cities in Australia.

The presence of wildlife on Australian roads was mentioned by some participants from both left- and right-side countries. Most of these participants said that wildlife were not an issue for drivers in their home countries. Where wildlife is found on roads in some other countries, the animals were said to be typically smaller and did not pose a safety threat. Some participants from left- and right-side countries mentioned that the wildlife warning signs were helpful in raising their awareness about the presence of animals on the road. Additionally, some participants from left- and right-side countries said that they were warned by their vehicle hire agency to not drive at night, owing to the risk of running into large animals on the road.

³ According to participants, the question and answer of the trivia/quiz would be posted on separate signs displayed in various distances along the journey.

3.2.3.3 *Perceived differences in driving conventions*

The theme of driving convention frequently emerged among participants from both left- and right-driving countries. A number of participants from right-driving countries, and a few from left-side driving countries, said that Australian drivers were more polite, courteous, and better behaved (in terms of following road rules and speed limits) compared to those in their home countries. Two participants from right-side driving countries (both from Germany) and one participant from a left-side driving country said that drivers in Australia are more flexible in their driving, tended not to follow road rules too rigidly, and excelled at 'defensive driving' (i.e., drivers take other drivers' moves into consideration when making driving decisions). Only one participant from a right-side driving country, and several from left-side driving countries said that they had observed a higher level of road rage, aggressive driving, and a lack of courtesy among Australian drivers compared to those in their home countries. One participant from a left-side driving country said that drivers in Australia tend to maintain a very short following distance.

3.2.3.4 *Perceived differences as a pedestrian and/or cyclist*

As pedestrians, the major difference that most participants, from countries of both driving sides, observed between Australia and their home countries was traffic lights at pedestrian crossings. These participants said that they were confused by the traffic lights at pedestrian crossings, because both pedestrians and vehicles would simultaneously receive the signal to proceed. Many participants said that it was confusing because, in their home countries, the traffic lights for vehicles would remain at red when the pedestrian lights flashed green, and pedestrians would always receive a clear signal that it was safe to cross.

In regards to traffic lights, some pedestrians from left- and right-side driving countries said that the timing and sequence of change from red to green lights were different in their home countries. While, in Australia, the red light flashes to warn pedestrians that the time for pedestrian crossing is near its end, it is the green light that flashes to portray the same message in their home country. However, the intended message of the flashing red figure is for pedestrians to not being crossing tends to be interpreted by most participants as a stop or danger signal, or that they should already have finished crossing the road. However, several participants from left- and right-side countries, noted that the countdown for some pedestrian lights was novel to them, and helped ease their anxieties as pedestrians when the red figure began to flash.

Some participants noted the general absence of 'diagonal' or 'scramble' crossings, where all traffic is stopped while pedestrians are allowed to cross in any direction. This type of crossing appears to be common in some other countries, and participants who mentioned it expressed some surprise about the absence of such crossings in (most of) Australia. Discussion around the issue suggested that such crossings provide greater convenience for pedestrians and are generally perceived as safe.

Many participants from right-side driving countries often pointed out that vehicles travel on the left-side of the road in Australia, and would therefore approach from the right as they cross the road as a pedestrian. These participants said that they were accustomed to looking left first when crossing the road, thus they needed to be particularly mindful of looking right first before crossing, or checking both sides as a safeguard.

Additionally, according to a number of participants from right-side driving countries, conventions for pedestrians' 'right of way' appears to be different in Australia. Many of these participants questioned

whether pedestrians do have the right of way in the country, as vehicles tended to give way to pedestrians more frequently and consistently in their home countries. Despite these findings, several participants from both left- and right-side driving countries have also said that they found Australian drivers to be very courteous in giving way to pedestrians wishing to cross the road.

"Cars stop for pedestrians in Canada, because pedestrians have the right of way. Cars don't stop for people in Australia." Canada, Female, 19

Several participants from the UK (left-side driving countries) and one participant from a right-side driving country said that, different to their home countries, "jay-walking"⁴ is illegal or less acceptable in Australia, and were surprised that pedestrians may receive fines for "jay-walking".

Two participants from Germany (a right-side driving country) queried about the conventions for pedestrians in terms of walking and cycling direction, as they did not notice an obvious pattern in Australia. These participants said that, in Germany, cyclists and pedestrians travelled against the traffic so that they can see and avoid oncoming traffic.

3.2.3.5 Strategies to stay safe

In terms of strategies participants used to stay safe on Australian roads, of all issues that were discussed, the theme of fatigue management most frequently appeared in participant responses. Many participants from both left- and right-side driving countries said that they had used various strategies to manage their fatigue levels, particularly when driving longer distances. These strategies include planning itinerary to set expectations and avoid stress, using rest stops, dividing duration of driving between friends and fellow travellers, avoiding driving at night, staying hydrated, and playing music. Of note, despite the playing of music being a recommendation by an international visitor as a potential fatigue prevention strategy, research clearly shows playing of music has a small, transient effect for reducing fatigue/sleepiness, but does not lead to any improvement in driving performance (Reyner & Horne, 1998; Schwarz et al., 2012). This highlights a need for increased education regarding the use of effective fatigue/sleepiness countermeasures.

"And also here they've got lots of signs that say like take a rest... take a break if you're tired.. when we were driving Sydney to Byron (Bay)... all along the motorway there were lanes where you can pull in to stop and eat... which was really good because otherwise we would've kept driving, and we can't drive that long without stopping." – England, Female, 22

Many participants from right-side driving countries, as well as some from left-side driving countries, said that they stay safe by paying extra attention to the driving environment. Some participants from right-

⁴ During the interviews, participants described "jay-walking" as crossing the road when the pedestrian lights were red, or when they did not use a pedestrian crossing to cross the road.

side countries and two from a left-side country said that they engaged in defensive driving by watching other drivers on the road and responding accordingly. Some other participants from left- and right-side driving countries said that they stayed focused, took greater care (e.g., “look twice, think twice”), drove more slowly, stayed calm and took their time when making driving decisions, avoided distractions (e.g., mobile phone use and talking to passengers), and drove in the middle lane.

Some participants from left- and right-side countries said that their strategy to stay safe was to follow road rules, including staying below the speed limit, following road signs (particularly speed limit signs), ensuring that they and their passengers were wearing seatbelts, and to indicate when changing lanes. Several participants from right-side driving countries and one from a left-side driving country said that they stayed safe by keeping left on the road. Those from right-side driving countries, in particular, said that they constantly reminded themselves to keep left (i.e., before and during driving), and used keep left road signs as a reminder.

Some participants from right-side countries and several from left-side countries said that their strategy was to practise before driving in busier roads (either by themselves or under the supervision of a local driver); and seeking and/or following advice from employers or friends who were more experienced with driving in Australia.

4 Task 7b: Interviews with experts

4.1 Method

4.1.1 Participants

Participants were 9 individuals (8 females and 1 male) with expertise in road safety issues relevant to international visitors. Interviews were conducted over the telephone or Skype, and ranged from 15 to 30 minutes in duration. Five participants were employed at the Department of Transport and Main Roads (TMR), 3 participants worked at Queensland Police Service (QPS), and 1 participant was employed in the tourism industry (and wishes to remain anonymous, thus their position and organisation has not been included in this report). According to a 5-point Likert scale measuring frequency of liaison with international visitors, a number of participants indicated that they frequently liaise with international visitors in their jobs ($M = 3.70$, $SD = 1.27$). Several participants, however, said that they only sometimes liaised with international visitors, either because their customer service centre was not well-frequented by international visitors (i.e., for TMR customer service centre staff), or that their role required them to liaise with stakeholders related to international visitors (e.g., tour guides or marketing companies), rather than deal directly with international visitors.

Table 5. Personal and professional demographic characteristics of the sample for Task 7b

Characteristic	N (%)
Gender	1 male (10%) and 9 females (90%)
Region	Brisbane = 4 Wide Bay Area = 2 North Tropical Queensland = 4

Organisation	Department of Transport and Main Roads = 5 Queensland Police Service = 4 Tourism industry = 1
Tenure	$M_{stay} = 7.70$ (years), $SD = 8.43$ Range = 2 months to 29 years

4.1.2 Consultation protocols

4.1.2.1 Brief demographic survey

A brief self-report survey collected personal demographic details (i.e., age and gender), as well as professional demographics including the region where the participants worked in Queensland, their role, and tenure. A question also measured, on a 5-point Likert-scale, the frequency which their role required direct liaison with international visitors to Queensland (*Very rarely* [1], *Rarely* [2], *Sometimes* [3], *Very often* [4], and *Always* [5]).

4.1.2.2 Interview schedule

A semi-structured interview schedule was used to guide interview discussions (see Appendix B). Preceding the interview questions, participants were informed that the term 'international visitors' referred to people who visit Australia from another country, and who were staying in Australia for under 12 months (although it was noted that these interviewees were not expected to know how long a visitor might stay). Interview questions prompted discussions regarding the professional role of the participants, road safety related issues that may arise when liaising with international visitors, the frequency which international visitors may seek help from participants, road safety topics that international visitors may enquire about, and issues they tend to report or discuss. Finally, a question further explored whether participants had provided any educational information and resources to international visitors.

4.2 Interview discussions: Preliminary themes and comments

4.2.1 Road safety related issues that arise among international visitors

According to most TMR customer service centre staff interviewed, in their liaisons with international visitors, driving related issues mainly involved the transferring of driving licences (to a Queensland licence), or registering vehicles under their names. Some TMR customer service staff members said their contact with international visitors also frequently involved the paying of infringements (e.g., for speeding, or parking in the wrong direction).

All participants from across the different organisations raised issues related to international visitors' failure to comply with Queensland road rules. Specifically, two participants from QPS in Bundaberg and two participants from QPS in Cairns said that they have observed issues with understanding and/or obeying Queensland road rules, including keeping left, giving way, obeying stop signs, following roundabout rules, and driving while using mobile phones. In relation to keeping left, one participant from QPS in Cairns suggested that potential catalysts may be the absence of arrow markings to indicate correct driving direction. This same participant also noted that serious crashes involving international visitors

were more typical among single and/or younger people travelling either by themselves or in groups; rather than international visitors travelling with their families.

In particular, one participant from QPS in Cairns noted that international visitors also face difficulties driving in multi-lane roundabouts, which was a particular concern because of the large number of multi-lane roundabouts in Cairns. International visitors were, according to this participant from the QPS in Cairns, prone to driving in the wrong (i.e., anti-clockwise) direction when they enter the roundabout from the right lane because they would typically interpret the right arrow marked on the lane as a cue to turn right immediately (rather than driving around the roundabout to turn right).

According to one participant from QPS in Cairns and one participant from the tourism industry, most Chinese visitors tend to struggle with the interpretation of road signs and, for some, the interpretation of traffic lights is also an issue. The two participants said that it is the convention for Chinese drivers to ignore road signs (and sometimes traffic lights) in their home country, thus many Chinese visitors found the interpretation of Australian road signs challenging and beyond their experience. Additionally, both participants said that Chinese visitors often lack the knowledge and experience in giving way; and are often uncertain about the appropriate actions that ought to be taken at intersections and roundabouts.

Concerns about unlicensed driving and fraudulent licensing were raised by several participants from QPS. First, the issue of unlicensed driving was mentioned by two participants⁵ (please note that details about these participants have been omitted in the current report for confidentiality reasons), who said that an international visitor employed at a farm was involved in a crash while driving and the farm owners had not realised that he was an unlicensed driver until the crash. Similarly, one participant from the QPS in Cairns raised that fraudulent licensing frequently occurred among visitors from China because the passing standards of practical exams are considered by the general public as too difficult, or requiring too much effort. Fraudulent licences were said to be easily obtained (through sources such as blackmail) in China, and according to the participant, certified translations of licences (whether genuine or fraudulent) may be purchasable through the Internet (e.g., Chinese version of eBay, www.Taobao.com) for a small cost. Chinese visitors are eligible to drive in Queensland using their Chinese driver licence for the first 3 months⁶ of their visit, provided that the licence is accompanied by a certified translation in English; and after this period, Chinese drivers are then required to apply for a Queensland driver licence by passing a written road rules test and practical driving test. Rather than sitting these tests, many Chinese visitors would choose to transfer their existing (and potentially illegal) Chinese licence to a Hong Kong licence (often illegally), as no tests are required. Chinese visitors tend to see this option as being more convenient, as holders of Hong Kong licenses are exempt from any tests prior to transferring to a Queensland driver licence. This is a problematic issue, given that Hong Kong is a left side driving country and has a similar system to that of Australia's, and that mainland China operates with a different system of road rules. The participant from the tourism industry and one participant from QPS in Cairns noted, however, that crashes involving Chinese visitors are infrequent due to their awareness of driving unfamiliar vehicles in an unfamiliar environment, which was said to result in slow and cautious driving. The participant from QPS in Cairns said that she had observed, as a driver in North Tropical Queensland, an increasing trend for Chinese visitors to be travelling in families of three generations (i.e., grandparents, young parents, and

⁵ The details about these participants are omitted in the current report to ensure confidentiality of the driver in the crash.

⁶ This is the case for other countries as well, and is not a unique requirement for China.

children); which may contribute to Chinese visitors driving slowly on the road to minimise the risk of injuries to family members due to being involved in a road crash.

In relation to international visitors as cyclists, one participant from the QPS in Cairns said that there had been issues with international visitors not wearing helmets and running red lights. However, this group of international visitors has been targeted by the QPS with appropriate education over the years and incidents involving visiting cyclists have now been reduced.

4.2.2 Dissemination of road safety information, educational materials and resources

4.2.2.1 TMR Customer Service Centre

While TMR customer service centres appear to be well-frequented by international visitors for matters relating to driving-related administrative processes, most customer service staff said that international visitors rarely seek assistance from the customer service centre in relation to driving and road safety in Queensland. One staff member said that information about driving and road rules were usually relayed on to international visitors when they fail a written test, as staff members would review the test with the international visitors to tell them the correct answers. The staff member further added that it was difficult to tell whether the international visitors had indeed understood the information that was provided.

According to the majority of customer service staff, there are no road safety educational materials or resources (e.g., brochures or leaflets) that are available/distributed to international visitors at their Customer Service Centres. One staff member referred to TMR's website, where "Your keys to driving in Queensland" is available for downloading; however, she also noted that the guide was only available in English.

Overall, most staff members interviewed had identified a need for road safety educational materials and resources targeted specifically at international visitors and available in multiple languages.

4.2.2.2 Queensland Police Service

While, similar to staff at the TMR Customer Service Centres, all participants from QPS said that they have very rarely been approached by international visitors for road safety related information, they have been active in distributing a range of road safety information and educational materials to international visitors. The two participants from QPS at Bundaberg said that they have engaged in a number of initiatives to distribute information to international visitors, including:

- Handing out "Our Roads, Our Rules" brochures (with basic Queensland road rules available in different languages) at community events;
- Encourage community members (and international visitors) to sign their names on an inflatable car to show their commitment to road safety;
- Running the 'Stop the Fatal Five' campaign targeting international visitors, which included distributing a small road sign that had a QR code that directed international visitors to Tourism Australia's website (<https://www.australia.com/en/facts-and-planning/useful-tips/road-safety->

[in-australia.html](#)), which, according to the participants, provides the option for road rules to be viewed in different languages⁷;

- Meetings are held every six weeks with hostel managers and farm owners, and information about road safety is distributed as part of these meetings. These stakeholders are keen on maintaining the welfares of their backpackers and employees; and
- Car hire agencies have recently been approached by QPS’s volunteers to distribute “Keep Left” stickers to be attached on the windscreens of rental cars (as shown in Figure 1). . According to the participants at QPS, the car hire franchisees said that they needed for management approval or legislation change to occur before they would use or distribute the “Keep Left” stickers. The QPS did, however, manage to engage one local car hire agency (that was not a part of a franchise) to use the stickers.

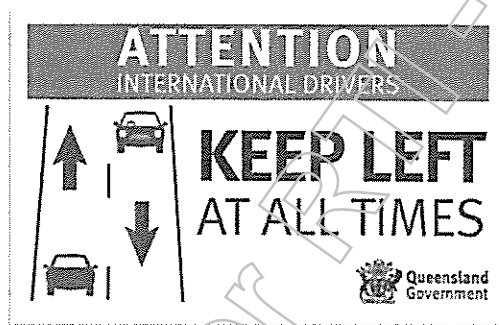


Figure 1. Keep Left sticker (80 x 50mm) distributed by the QPS at Bundaberg (please note that the image is not to scale)

One participant from QPS in Cairns said that a campaign targeting international visitors, “Our Roads, Our Rules – Stay Safe, Stay Left”, has been implemented in 2017. The campaign was developed as a response to two fatal crashes in 2016 in Far North Queensland that were attributed to international visitors failing to keep left. Further, the development of the campaign was a response to a number of non-fatal serious crashes and many unreported near misses identified from discussions with local community members. Materials and resources developed as part of the campaign are as follows:

- Road signs have been placed in locations well-frequented by international visitors (e.g., National Park exits, local attractions, shopping centre carparks, and farm entrances; as well as areas where international visitors may forget to keep left (e.g., long straight road sections, single lane roads in rural areas);
- Bright yellow non-permanent stickers in the shape of a left arrow, with the message “Stay Safe, Stay Left”, have been designed in two sizes. A smaller sticker (45 x 30mm) was designed to be attached to vehicle windscreens, while a larger sticker (90 x 60mm) with the message in reverse was produced to be attached to the vehicle dashboard (with the intention that the message

⁷ While the webpage was still accessible as at the day of accessing for this report (i.e., 28/05/2018), at this time, the translations of the road rules into different languages was unavailable.

being reflected onto the windscreen). The stickers are distributed to vehicle hire agencies, by the QPS at roadside stops;

- A keyring with the same bright yellow arrow and the message “Stay Safe, Stay Left” has also been produced; and
- The “Our Roads, Our Rules” brochure (also used by the QPS in Bundaberg, as mentioned previously) provided an overview of basic road rules in multiple languages; and are distributed to vehicle rental agencies, tourist accommodations and visitor information centres (e.g., in Atherton, Cairns and Mareeba), roadside RBT and targeted vehicle stops by the police, at police stations, and during public events and promotional activities.



Figure 2. Stay Safe - Stay Left sticker developed by the QPS in Far North Queensland (not to scale)

A participant from QPS in Cairns, whose role is the liaison officer for the Chinese community, said that the following initiatives were implemented in Cairns to distribute information about road safety to Chinese visitors:

- Brochures about road rules (written in different languages) have been handed out to Chinese visitors;
- The participant acts in an advisory role to provide road safety information for a WeChat forum hosted by a not-for-profit organisation based in Brisbane. The WeChat forum, according to the participant, targets Chinese visitors intending to drive in Australia; and
- Presentation sessions are facilitated to provide tour guides and university staff members with training with essential safety information to be passed onto Chinese visitors and international students from China. An explanation of Queensland road rules are provided during these sessions, based on the official Queensland road rules and driving manual.

Among all participants from QPS and the tourism industry, the issue of self-drive tours and free independent travellers⁸ (FIT) among Chinese visitors were identified as a concern. The two participants from QPS and tourism industry noted that self-drive tours are growing in popularity among Chinese visitors, particularly young people and those with young families. These cohorts of Chinese visitors are often more educated and actively search for educational resources and materials about driving safely in Australia. Unfortunately, according to both participants, there are very limited resources available in the Chinese language and participants tend to access road safety information by reading blogs and posts

⁸ According to one participant from the tourism industry, free independent travellers (FIT) are often small groups of tourists travelling and holidaying with a self-booked itinerary (i.e., as opposed to members of traditional guided tours).

shared on travel forums. Both expert participants stressed the need for formal sources of educational materials to be developed and disseminated to self-drive tourists. Despite the growing popularity of self-drive tours and FIT among Chinese visitors, according to the two participants, it is difficult to reach these travellers as they cannot be accessed through tour guides.

The participant from QPS in Cairns pointed out that, on WeChat and Internet, an unofficial version of the driving manual for New South Wales (NSW) road rules is available in Chinese. As Chinese FIT often research and are eager to learn about driving and road safety in Australia, and no officially translated road rules are available in Chinese, the community of Chinese FIT have created the translations to share the information amongst themselves. He further noted that the Chinese translation would be a valuable reference to help QPS deliver road safety information; however, he also qualified that QPS would never recommend Chinese visitors to only read the unofficial Chinese version of the NSW driving manual owing to some inaccuracies from language habits and conventions.

4.2.3 Collaboration between organisations to disseminate road safety educational information

Some participants (from QPS, TMR and the tourism industry) voiced the need for collaboration between different organisations that deal frequently with international visitors to disseminate information about road safety and driving in Australia. For example, road safety and driving information may be distributed through brochures or websites of car rental agencies, travel forums, or government websites frequently accessed by international visitors (e.g., to apply for visas).

Sch.4, Part 4, s.4(1)(a)

5 Task 7c: Comparative Review of Road Rules

Appendix C presents the desktop comparative review of road rules in Queensland, Australia compared to other countries which were identified in Stage 1 (Queensland Road Crash data) and Stage 2 (interviews with international visitors). For each table in the Appendix, to facilitate reading, the road rules in Queensland, Australia are presented on the left side of the table, with the international road rules presented on the right side of the table. The road rules for Queensland, Australia are compared to the road rules of the following countries: New Zealand, Japan, United Kingdom (UK), India, Hong Kong, United States, Ireland, Germany, the Netherlands, Denmark, Italy, Canada, China, Taiwan, Singapore, France, Papua New Guinea, South Korea, Chile, Brazil, Israel and Sweden. The module with the road rules that drivers/riders learn in Malaysia is not published online and therefore, we were unable to access the road rules for Malaysia.

The road rules presented in Appendix C support what participants raised in the interview discussions in Stage 2. As highlighted in Appendix C, while the traffic lights for each country comply with standard international operation (i.e., green means go, amber mean proceed with caution, and red means stop), there are some differences between the countries as to how these lights operate. For instance, in Australia the phasing of the traffic lights are from green, to amber, and then to red. However, in some European countries, the red light switches from red to amber before turning green. This amber light signals for the driver to prepare to go on the green light. In other countries, such as Hong Kong, the amber light comes on while the red light is still on. Again, this signals to the driver to prepare to proceed on the green light. Consistent with the findings from the interviews with international visitors, differences in the sequence of lights may lead to some confusion for international drivers.

Differences in road rules were also identified between the countries for pedestrian traffic lights and these differences were also reported by some participants during the interviews. In Australia, and when crossing a road, the green man walk signal informs pedestrians that they may cross the road. Following the green signal, the red flashing man signal informs pedestrians that they must finish crossing the road. The red man signal indicates to pedestrians to stop and to wait on the side of the walk for the next green signal. However, in other countries there is a flashing green light instead of a flashing red light. As highlighted in the participant interviews, some of the participants reported that the red flashing red man was confusing and anxiety provoking. Overall, these findings may indicate that more education material on driver and pedestrian traffic light signals is required for international visitors.

There are various notable differences in road rules between the left- and right-hand side driving countries. For example, for left-side driving countries, drivers are required to keep left unless overtaking. For right-side driving countries drivers are required to keep right unless overtaking. Further, for left-hand side driving countries you must give way to the left. However, for right-hand side driving countries you must give way to the right. The direction of traffic at roundabouts also differs between left- and right-side driving countries (i.e., clockwise for left-side driving countries and anti-clockwise for right-side driving countries). As noted from the participant interviews, some participants from right-side driving countries reported confusion about the road rules relating to roundabouts. Further, other participants reported difficulties when using roundabouts, owing to the absence or limited number of roundabouts in their home countries. As identified in Appendix C, roundabouts are less common in some countries than in Australia. For example, roundabouts in Canada did not emerge until the 1990s and therefore, drivers from Canada may have less experience in using roundabouts compared to drivers from Australia. These



differences in road rules highlight why some drivers from right-side driving countries appeared to have observed greater changes when driving in Australia compared to drivers who were already used to driving on the left side of the road in their home country.

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6 Discussion

6.1 Interviews with international visitors

6.1.1 Experiences as drivers

6.1.1.1 *Use of vehicles*

Overall, there was a fairly even spread of international visitors interviewed who were from left- and right-side driving countries. While all participants had driven a vehicle during their current stay in Australia, it was common for international visitors (almost 50%) to have driven two different vehicles. Most visiting drivers had rented a vehicle, and the majority of these rentals were planned. Of note, although many participants from across countries of both driving sides had not initially planned to drive, it appears that most of them did plan their rentals once having made the decision to drive. Potentially, vehicle rental agencies may be an avenue for potential intervention in terms of dissemination of road safety educational materials and resources. However, considering the comments by expert participants about such vehicle rental agencies not necessarily being willing to distribute some materials in the absence of legislation change and management support, it appears that interventions may be needed to encourage the uptake of this initiative among vehicle rental agencies.

Most visiting drivers appeared to be experienced in the types of vehicles they had chosen to drive during their current stay in Australia, with the exception of those operating larger vehicles (i.e., 4WDs, mini-buses, vans and campervans). As a large proportion of international visitors who drove larger vehicles in Australia indicated that they were novice drivers of a larger vehicle, there may be benefit in developing educational materials and resources on the safe operation of larger vehicles; and to potentially engage vehicle hire agencies in implementing and/or distributing these resources.

In terms of their use of vehicles, it was common for international visitors to drive interstate, often from the Great Ocean Road in Victoria to Sydney, Brisbane, and later on, Cairns, with longer breaks taken in major towns/cities. The frequency of vehicle hire/usage varied from several days to several months, depending on the distance travelled by international visitors between stops. Many participants also rented a 4WD as part of a 'tagalong tour' to drive in off-road locations (e.g., Fraser Island and Magnetic Island). These 4WDs are often hired for shorter timeframes (i.e., usually several days). Many participants on a working holiday visa (i.e., backpackers) drove poorer quality vans and mini-buses to work.

6.1.1.2 *Issues of familiarity with vehicle*

While most visiting drivers of cars and motorcycles/mopeds/scooters said that they were experienced with the type of vehicle they had driven while in Australia, a large proportion of international visitors who had driven a larger vehicle in Australia (4WDs, mini-bus, van and campervan) had not driven the particular vehicle type in their home country. A related concern is that, among these international visitors driving a larger vehicle for the first time, many of them have not invested time in researching or practising in an area vacant of traffic.

An issue of familiarity most frequently raised by participants from countries of both driving sides, but particularly among those from left-side driving countries, was that of indicator position. Similarly, issues relating to coordination from habitual use of the wrong hand to operate controls (e.g., gearstick and

handbrake) were raised by some participants from right-side driving jurisdictions as being a distraction in the first several days of driving (until international visitors began adjusting to the vehicle side). While these issues may be perceived as minor inconveniences, for visiting drivers who are unfamiliar with the Australia driving environment in an unfamiliar vehicle, the unexpected activation of wipers (rather than indicators) may present as a distraction when making a turn or switching lanes.

For some international visitors from right-side driving countries, another main issue of familiarity pertained to driving from the right side in the vehicle. The positioning and perspective of driving from the right side of a vehicle presented disorientation issues, in that visiting drivers tended to position their vehicle towards the left side of the lane (as they would re-position their car if driving on the left side of the vehicle in a right-side driving jurisdiction). This may present the risk of partial lane departure, or worse, driving off the road.

6.1.1.3 Issues of familiarity with road rules

A number of differences in road rules were noted by participants from both left- and right-side driving countries; however, it appeared that those from right-side driving countries provided more feedback in terms of differences.

To begin with, the theme of slower speed limits in Australia was most frequently raised by many participants from left- and right-side driving countries. These international visitors tend to also be aware of the stronger deterrents that are also different to their home countries, and are often mindful of their speed as an attempt to avoid the steep penalties in Australia. According to these international visitors, frequent speed limit signs were helpful in informing/reminding them which speed they should follow.

It appears that some international visitors may benefit from education about road rules regarding traffic lights and roundabouts. Traffic lights was a theme that had frequently emerged from responses of participants from both left- and right-side driving countries. The positioning of the traffic lights on the road, the sequence to which the lights flash from red to green, and presence of multiple traffic lights (including those with arrow lights), was noted by participants from across the left- and right-side countries as different and thus confusing.

For a number of international visitors from right-side driving countries, keeping left in Australia was the main road rule that was different to their home country. Most of these participants required several days before they became more familiar with driving on the left. The 'keep left' road signs and road markings were noted as being particularly helpful by some participants from right-side driving countries. Roundabouts were also identified as a main point of difference in Australia compared to many right-side driving jurisdictions, mainly in terms of travelling direction (i.e., driving clockwise in Australian roundabouts vs. anti-clockwise in their home countries), and the rules for indicating when entering roundabouts were also noted as being different.

6.1.1.4 Issues of familiarity with driving environment

The major difference in driving environment perceived by the majority of participants in both left- and right-side driving countries was the long distances between destinations/major towns and cities. The unexpected long journeys, for some of these participants, brought about risks associated with fatigue; however, it appears that some participants (from countries of both driving sides) have utilised government-implemented countermeasures (e.g., two-staged anti-fatigue quizzes and rest stops) and

created various strategies (e.g., listening to music and avoiding distractions) to help prevent fatigue driving.

The presence of large wildlife in Australia was mentioned by some international visitors across left- and right-driving countries as being a point of difference in the Australian driving environment. However, frequent warning signs about wildlife, as well as warnings by vehicle rental agencies to not drive at night appear to be adequate and effective countermeasures to aid international visitors in avoiding incidents or crashes that involved wildlife on the road.

6.1.1.5 Perceived differences in driving conventions

Overall, of those international visitors who mentioned different traffic culture and driving conventions, the majority (mainly comprising of participants from right-side driving jurisdictions) commented positively on Australian drivers in terms of their courtesy, considerations of other road users, and capacity for defensive driving. Only a few participants made negative comments relating to aggressive driving behaviours and a lack of courtesy.

6.1.1.6 Planning, preparation, and access to educational resources

Aside from researching and confirming their eligibility to drive in Australia, the majority of international visitors from both left- and right-side driving countries did not plan or prepare for driving and road safety in Australia. Of the minority who had actively planned or prepared, their methods predominately involved accessing chat forums and Google to learn about road rules and talking to people who have previously driven in the country (including staff of vehicle rental agencies, host parents, employers, and/or friends). Some participants from right-side driving countries who hired 4WDs as part of a tagalong tour were required to watch a safety induction video, which all of them have found helpful. Only a small proportion of international visitors from right-side driving countries practised with the vehicle in quiet locations before driving with busier traffic, with most of these participants practising under the supervision of host parents/employers.

The limited effort invested in planning and preparing for driving and road safety in Australia by international visitors may potentially be a reflection of the common assumption held by many that road rules and driving environments in Australia are similar to that of their home country. Further, according to a large number of participants from left- and right-side driving countries, there are currently limited resources about driving and road safety that are easily digestible, and readily available/accessible through a range of online and offline (hardcopy or physical) mediums.

There was a high demand among international visitors from both left- and right-driving sides for differences in road rules to be highlighted in educational materials and resources, including rules for roundabouts, meaning of different road signs, and expected driving speeds and deterrents for speeding. There were also some suggestions for future educational resources to warn international visitors about long driving distances and provide strategies to prevent fatigue driving; while some participants from left-side driving countries suggested that advice and reminders be given to manage potential distractors of driving (e.g., use of mobile phones).

6.1.2 Experiences as pedestrians

Most international visitors from countries of left- and right-driving sides walked frequently, both as a means of travelling to destinations and for enjoyment. The major issue of familiarity among international visitors as pedestrians, for those from countries of both driving sides, related to the use of traffic lights at pedestrian crossings. In Australia, it is common for the traffic lights for both pedestrians and vehicles to simultaneously turn green. While, to local Australian pedestrians, this sequence of lights is interpreted as 'vehicles can proceed in the absence of pedestrians on the crossing', it typically sends an ambiguous message to international visitors that both pedestrians and vehicles can proceed at the same time. International visitors often respond with panic and anxiety for the fear that they, as the more vulnerable road users, may be run over by a vehicle. Similarly, some participants from left- and right-side driving countries have responded with anxiety to the red flashing man as a warning that they should already have finished crossing the road (and thus a vehicle may run over them at any given time), rather than interpret the intended message of 'pedestrians should not start to cross'.

Many international visitors from right-side driving countries had habitually looked left first when crossing the road, and noted that they needed constant reminders to look right first (or check both sides as a safeguard). Of note, there had been a near-miss that was reported by a participant from France (a right-side driving country), where he was almost involved in a crash with a turning vehicle because he had failed to look right.

The culture of pedestrians' 'right of way' appear to differ in Australia, compared to some right-side driving countries, with many participants from right-side driving countries questioning their 'right of way' as pedestrians in Australia.

6.1.3 Experiences as cyclists

Only a minority of participants had cycled in Australia either for general leisure and/or as a method of commuting. Overall, most participants across countries of both driving sides said that they did not experience any issues or incidents while cycling, except for two participants from right-side driving countries (China and the Netherlands). One (China) commented about short distances between vehicles and cyclists, while another (the Netherlands) noted the limited dedicated pathways for cyclists in the Australian driving environment.

6.2 Comments from experts

Comments made by experts appear to overlap/parallel responses from international visitors. To be discussed.

6.3 A note about qualitative research methods

Qualitative research methods including interviews provide rich and in-depth insight into the perspectives of participants considered 'experts' in the subject matter under investigation. In Stage 2, interviews with international visitors and those working in TMR, QPS, and tourism, offered the means to provide in-depth insights from individuals whom we would consider 'experts' in the topics of international visitor road safety. By its nature, qualitative research seeks depth and richness as opposed to representativeness and generalisability. While it is acknowledged that not all nationalities from the Top 10 visiting countries were included in Stage 2 interviews with international visitors, the sample featured males and females, left and

right-hand sided driving countries, as well as a high proportion of younger drivers. These characteristics are consistent with results found in the Stage 1 analysis in terms of international visitors to Queensland who drive. . For future research, however, there may be scope for a survey study with a larger sample size of international visitors to confirm the findings of the current study, and to ensure additional nationalities of international drivers in Queensland may be represented.

Likewise, there may be scope for future research to engage the participation of vehicle hire agencies. The input and expertise of stakeholders in the vehicle hire industry would be particularly relevant when considering travel patterns and the distribution of road safety educational materials and resources to international visitors.



7 References

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Appendix A

INTERVIEW SCHEDULE FOR INTERNATIONAL VISITORS

Please note:

To confirm the participation criteria of the study with participants, the interviewer will first ask the questions from the brief demographic survey verbally, before progressing with the below interview questions. This method allows interviewers to identify any non-eligible individuals early and before we have used more of their time.

Transport modes that visitors use in Queensland

Driving experience

1. What type of vehicle/s are have you been driving in while visiting Australia? *[Show list of vehicle types to participant]*
2. Why did you choose this particular type of vehicle?
3. Have you driven in this type of vehicle before? If so, how many years/months of experience do you have driving this type of vehicle?
4. How would you describe your experience with driving this vehicle?
Prompt: Were there any particular issues with unfamiliarity?
5. Did you rent a vehicle from a vehicle rental agency, or did you borrow the vehicle from a family or friend?
Did you plan to rent a vehicle?
6. How long were you driving this vehicle for?
7. How frequently did you drive in Queensland?
8. In what areas or locations have you driven, and how far were you travelling?
9. While driving, have you had any experiences that you wish to share? For example, have you been involved in a crash, other road issues or incidents, or a "near miss" (a near miss is where you could have crashed but didn't)? Can you explain what happened?
Prompt: Where and when did it happen? What happened?



As well your experiences as a driver, we are also interested in your experiences as a road user generally including occasions you have been a pedestrian and/or a cyclist. We will start with your experiences as a pedestrian. For our purposes today, a pedestrian is someone who has walked on/across/or near a public road for any duration of time.

As a pedestrian...

10. Where/what sorts of locations have you walked?
11. How frequently do you walk around the streets in Queensland?
12. What was the purpose of your walk (e.g., was it walking for recreational/enjoyment purposes or just as a means of getting where you needed to go - if the latter, why did you walk as opposed to other modes of transportation)?
13. Have you had any issues or challenges with being a pedestrian in Queensland?
14. While walking as a pedestrian, have you had any experiences that you wish to share? For example, having been involved in a crash, other road issues or incidents, or a "near miss" (a near miss is where you could have crashed but didn't)? Can you explain what happened?
Prompt: where and when did it happen? What happened?

Now, in relation to as a cyclist...

15. Have you ridden a bicycle on/across/or near a public road for any duration of time during your visit?
[If yes, continue to **Question 14**; if no, move to next section of Questions, **Question 19**]
16. What bicycle did you use - was it a hire (ride share scheme) bike or did you borrow it from friends/family or did you purchase a bicycle?
17. Where/what sorts of locations have you cycled?
18. What was the purpose of your ride (e.g., was it cycling for recreational/enjoyment purposes or just as a means of getting where you needed to go - if the latter, why did you cycle as opposed to other modes of transportation)?
19. How frequently did you cycle while in Queensland?
20. Have you had any issues or challenges with being a cyclist in Queensland?
21. While riding as a cyclist, have you had any experiences that you wish to share, such as having been involved in a crash, other road issues/incidents, or a "near miss" (a near miss is where you could have crashed but didn't)? Can you explain what happened?
Prompt: where and when did it happen? What happened?

Planning and preparation

22. We are interested in how international visitors plan for their trip in terms of driving and road safety. Can you please describe the preparation steps that you have undertaken to drive safely in Australia?

Prompt: Did you speak to anybody (e.g., travel agent) about road safety issues?

23. What resources helped you learn about the road rules and driving environment in Australia?

Prompts:


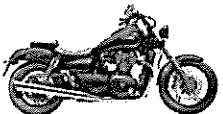


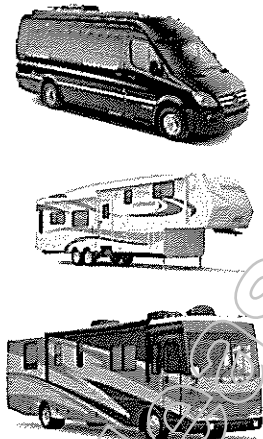
- Where did you access this information? (E.g., travel blogs, information from rental agencies or accommodation providers, Department of Transport and Main Roads)
 - What information (strategies) did these resources provide about things to do stay safe on Australian roads?
24. If you were to assist with designing future educational resources for people who want to drive while visiting Australia, what additional information would you make available to future visitors? What would you certainly want to keep the same?
25. Before driving on the road, did you prepare by getting familiar with your vehicle or the driving environment? If so, what did you do?
26. Were there any road safety issues that you didn't anticipate when planning for your trip to Australia?

Perceived differences in road rules and driving environments between Queensland and home country

27. In your opinion, how different is it to drive in Queensland, compared to your home country, in terms of:
- a. Road rules?
 - b. Driving environment?
28. What are some differences you have had to be mindful of, when using the roads as a pedestrian/cyclist in Queensland when compared to your home country?
29. What strategies have you used to stay safe on the roads during your stay in Australia?
30. Any final comments about road safety issues for international visitors?



List of Vehicle types

Picture	Type of vehicle
	Moped
	Motorbike
	Car: Sedan
	Car: 4-wheel-drive
	Recreational vehicle
OTHER	Other (please specify): _____

Appendix B

INTERVIEW SCHEDULE FOR EXPERTS IN ROAD SAFETY ISSUES RELATING TO INTERNATIONAL VISITORS

Thank you for agreeing to participate in this interview.

Before we begin, please note that for the purpose of this interview, the term 'international visitors' refers to people who visit Australia from another country, and are staying in Australia for under 12 months.

1. Can you tell me about your role, and what it entails?
[Prompt: What is your position's involvement with international visitors to Queensland?]
2. In general, what are some of the road safety related issues that arise when dealing with international visitors?
3. How frequently do these international visitors contact you for assistance?
4. What are some of the road safety topics they enquire about? (E.g., licensing requirements, road safety related information?)
5. What are some of the road safety issues that international visitors report or wish to discuss?
6. What sorts of educational information and resources do you provide international visitors to Australia?
7. Can you comment on any other issues relating to international visitors' road safety which you believe may be helpful or relevant to our research?

Appendix C

ROAD RULES FOR RELEVANT VISITOR GROUPS

Table A.1. Australia and New Zealand

Country	Queensland, Australia	New Zealand
Web address	https://www.qld.gov.au/transport/safety/rules/road	https://www.nzta.govt.nz/resources/roadcode/about-driving/the-give-way-rules/ Resources for driving in New Zealand: https://www.nzta.govt.nz/assets/resources/driving-in-nz/docs/driving-in-nz.pdf https://www.newzealand.com/au/feature/important-road-rules/
Direction of traffic	Left-hand side driving	Left-hand side driving
Changing lanes and merging	<p><i>Changing lanes:</i></p> <ul style="list-style-type: none"> • Must give way to any vehicle in the lane you are moving into. • Must indicate for long enough to give warning to others. <p><i>Merging:</i></p> <ul style="list-style-type: none"> • On roads where there are lanes marked on the road... • Must give way to traffic already in lane you are moving into. <p><i>On road where there are no lanes marked on the road:</i></p> <ul style="list-style-type: none"> • Must give way to any vehicle that is ahead of you 	<p><i>Merging:</i></p> <ul style="list-style-type: none"> • As you merge, let one vehicle from the other lane go first, and then go. <p><i>If you are in a merge lane at an intersection:</i></p> <ul style="list-style-type: none"> • show you want to merge by signalling for at least three seconds • move into a safe gap in the traffic • adjust your speed and following distance. <p>When using an on-ramp to enter a motorway:</p> <ul style="list-style-type: none"> • change your speed to match the speed of the motorway traffic • use the whole length of the on-ramp to adjust your speed • signal right for at least three seconds

Country	Queensland, Australia	New Zealand
Giving way	<p><i>You are required to give way when:</i></p> <ul style="list-style-type: none"> The rules say that you must Give way sign Stop or give way lines on the road You're turning right across the path of oncoming vehicle at an intersection You're turning left or right at a T-intersection You're moving onto a road from a driveway or land next to a road You're moving off from being stopped on the side of the road You're doing a U-turn You're turning left at an intersection with a 'left turn on red after stopping' sign <p><i>2 stop or give way signs:</i></p> <ul style="list-style-type: none"> Both vehicles must give way to other vehicles before they must give way to each other <p><i>1 stop or give way sign:</i></p> <ul style="list-style-type: none"> Vehicle with give way sign must give way to vehicle with stop sign 	<ul style="list-style-type: none"> move into a safe gap in the traffic don't enter the motorway at a sharp angle adjust your speed and following distance. <p><i>When using an off-ramp to enter a motorway:</i></p> <ul style="list-style-type: none"> watch for exit signs signal left for at least three seconds move into the left-hand lane as soon as possible keep up with the traffic flow until you are on the off-ramp don't leave the motorway at a sharp angle adjust your speed. <p>If turning, give way to all traffic that is not turning</p> <p>If you are leaving the path of a marked centre line at an uncontrolled intersection, you must give way to vehicles following the centre line. This is because vehicles leaving the path of the centre line are legally turning (even though sometimes they might actually be going in a straight line) and the give way rules apply.</p> <p>Must give way to all traffic on the road and any road user on a footpath, cycle path, or shared path. In all other situations give way to your right.</p> <p>If you are turning at an intersection where there is a cycle lane, give way to cyclists going straight through.</p> <p>Railway crossing:</p> <ul style="list-style-type: none"> You must stop if the signals have started flashing, the bells have started ringing and/or the barrier arm has started to lower.

Country

Queensland, Australia

Giving way at uncontrolled crossroads (no traffic lights, lines, or signs):

- Must give way to vehicles on your right

Giving way at a T-intersection:

- Must give way to all vehicles; except those doing a U-turn - travelling on road continuing through intersection

Giving way when turning right:

- When turning right at uncontrolled crossroad, you must give way to vehicles coming from opposite direction that are: driving straight ahead through the intersection, turning left at intersection.

Giving way when using slip lanes:

- Must give way to all traffic already on the road you're entering (expect vehicles doing a U-turn)

Giving way to buses:

- Build-up areas and speed limit is 70km/h or less – must give way to bus that displays a “give way to buses” sign, and signalling to enter traffic from: a bus zone, bus stop, the left side of the road.

Giving way when entering or leaving a road:

- Must give way to all other vehicles and signal for at least 5 seconds when you drive on the road from a parked position on the side of the road or in a median strip.

Giving way to pedestrians and cyclists:

- From private property or driveway - must give way to pedestrians or cyclists on the footpath or road and vehicles on the road you are entering.

Giving way to pedestrians and cyclists:

- Must give way to pedestrians crossing a road you're turning into or entering.

New Zealand

When coming up to a one-lane bridge, take note of the signs:

- a red circle shows you must give way
- a blue rectangle shows that other vehicles should give way to you.

Country	Queensland, Australia	New Zealand
Keeping left/ right, Overtaking	<p>Single-lane roads - stay as close to the left side</p> <p>Multi-lane roads - posted speed limit 90km/h or more, or if the road has a "keep left unless overtaking" sign, you must not drive in the right-hand lane unless...</p> <ul style="list-style-type: none"> • Overtaking • Turning right • Making a U-turn • Avoiding an obstruction • Driving in congested traffic • Using a special purpose lane that you are allowed to be in. <p>Drivers are allowed to overtake on the left on all multi-lane roads</p> <p>You can only overtake another vehicle if you have a clear view of any approaching traffic and you can do so safely (and road markings and signs allow you to overtake).</p> <p>It is never legal to exceed the speed limit to overtake another vehicle</p> <p>If you're approaching a pedestrian or children's crossing, you cannot overtake or pass a vehicle that is travelling in the same direction and has stopped, or is stopped at the crossing.</p>	<p>Where there are two or more lanes on your side of the centre line:</p> <ul style="list-style-type: none"> • keep in the left-hand lane as much as you can <p>The lane closest to the centre line should only be used when:</p> <ul style="list-style-type: none"> • You want to pass another vehicle • You want to turn right • The left-hand lane is full with other traffic or is blocked.
Road markings	<p>Must not cross a double continuous centre line except to safely to pass a cyclist</p> <p>Can overtake across a broken single centre line</p> <p>You can drive on a painted traffic island that is surrounded by a single continuous line for up to 50m to...</p>	<p>It is illegal to pass other cars where there is yellow line instead of a white line marking the middle of the road. The yellow line indicates that it's too dangerous to overtake.</p> <p>If you do not have a solid yellow line on your side of the centre line, it is only safe to overtake when you see that</p>

Country	Queensland, Australia	New Zealand
	<ul style="list-style-type: none"> • Enter or leave the road • Enter a turning lane that begins immediately after the island. 	the road is clear form 100m throughout the entire manoeuvre.
Roundabouts	When approaching a roundabout you must give way to all vehicles already on the roundabout. Turn left – must be in left lane Turn right – must be in right lane Straight – enter roundabout in either lane.	Give way to all vehicles that will cross your path from your right as you enter the roundabout. Turn left – must be in left lane Turn right – must be in right lane Straight – enter roundabout in either lane.
Safe following distance	Ideal condition - 2 seconds behind the vehicle in front Add 1 extra second for each 3m trailer length when towing a trailer or caravan	The two-second rule (ideal conditions) The four second rule (bad weather) When you're following another vehicle and you don't intend to overtake them, you must leave enough space in front of your vehicle for vehicles behind to pass you.
Special purpose lanes	Bus lane: if you are operating a bicycle, bus, taxi, limousine, or emergency vehicle. Must give way to bicycles when moving into a bicycle lane. Cyclists can choose whether to use a bicycle lane – it isn't mandatory. T2 lanes – carrying 2 or more people T3 lanes – carrying 3 or more people If you travel in a special purpose lane illegally, you may be fined.	Other vehicles may use special vehicle lanes to make a turn or get to a parking space. Use of the lane for these purposes must be kept to a minimum length and be no more than 50 metres. You must give way to any vehicles entitled to use the lane.
Traffic lights, U-turns, overhead lane controls	Standard international operation You can only make a U-turn at traffic lights when there is a U-turn permitted sign Overhead controls: Must not travel in a lane marked with an illuminated red diagonal cross or pass a traffic sign above a lane displaying a red diagonal cross.	Standard international operation

Country	Queensland, Australia	New Zealand
Other common rules	Hand-held phone illegal, able to use hands-free (open licence) BAC – legal limit .05% (open licence)	Hand-held phone illegal, able to use hands-free (open licence) BAC – legal limit .05% (open licence)

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Table A.2. Australia and Japan

Country	Queensland, Australia	Japan
Web address	https://www.qld.gov.au/transport/safety/rules/road	http://www.jaf.or.jp/e/for-overseas-drivers/driving-in-japan.htm#a Offered on JAF website: Accident Avoidance training (risk perception) (by Osaka University): http://www.jaf.or.jp/e/risk_prediction/index.htm Only limited information could be found on Government sites.
Direction of traffic	Left-hand side driving	Left-hand side driving
Changing lanes and merging	<p><i>Changing lanes:</i></p> <ul style="list-style-type: none"> • Must give way to any vehicle in the lane you are moving into. • Must indicate for long enough to give warning to others. <p><i>Merging:</i></p> <ul style="list-style-type: none"> • On roads where there are lanes marked on the road... • Must give way to traffic already in lane you are moving into. <p><i>On road where there are no lanes marked on the road:</i></p> <ul style="list-style-type: none"> • Must give way to any vehicle that is ahead of you 	
Giving way	<p><i>You are required to give way when:</i></p> <ul style="list-style-type: none"> • The rules say that you must • Give way sign • Stop or give way lines on the road • You're turning right across the path of oncoming vehicle at an intersection • You're turning left or right at a T-intersection • You're moving onto a road from a driveway or land next to a road 	Give priority to buses

Country	Queensland, Australia	Japan
	<ul style="list-style-type: none"> • You're moving off from being stopped on the side of the road • You're doing a U-turn • You're turning left at an intersection with a 'left turn on red after stopping' sign <p><i>2 stop or give way signs:</i></p> <ul style="list-style-type: none"> • Both vehicles must give way to other vehicles before they must give way to each other <p><i>1 stop or give way sign:</i></p> <ul style="list-style-type: none"> • Vehicle with give way sign must give way to vehicle with stop sign <p><i>Giving way at uncontrolled crossroads (no traffic lights, lines, or signs):</i></p> <ul style="list-style-type: none"> • Must give way to vehicles on your right <p><i>Giving way at a T-intersection:</i></p> <ul style="list-style-type: none"> • Must give way to all vehicles; except those doing a U-turn - travelling on road continuing through intersection <p><i>Giving way when turning right:</i></p> <ul style="list-style-type: none"> • When turning right at uncontrolled crossroad, you must give way to vehicles coming from opposite direction that are: driving straight ahead through the intersection, turning left at intersection. <p><i>Giving way when using slip lanes:</i></p> <ul style="list-style-type: none"> • Must give way to all traffic already on the road you're entering (expect vehicles doing a U-turn) <p><i>Giving way to buses:</i></p> <ul style="list-style-type: none"> • Build-up areas and speed limit is 70km/h or less – must give way to bus that displays a “give way to buses” sign, and signalling to enter traffic from: a bus zone, bus stop, the left side of the road. <p><i>Giving way when entering or leaving a road:</i></p>	

Country	Queensland, Australia	Japan
	<ul style="list-style-type: none"> • Must give way to all other vehicles and signal for at least 5 seconds when you drive on the road from a parked position on the side of the road or in a median strip. <p><i>Giving way to pedestrians and cyclists:</i></p> <ul style="list-style-type: none"> • From private property or driveway - must give way to pedestrians or cyclists on the footpath or road and vehicles on the road you are entering. <p><i>Giving way to pedestrians and cyclists:</i></p> <ul style="list-style-type: none"> • Must give way to pedestrians crossing a road you're turning into or entering. 	
<p>Keeping left/right, Overtaking</p>	<p>Single-lane roads - stay as close to the left side</p> <p>Multi-lane roads - posted speed limit 90km/h or more, or if the road has a "keep left unless overtaking" sign, you must not drive in the right-hand lane unless...</p> <ul style="list-style-type: none"> • Overtaking • Turning right • Making a U-turn • Avoiding an obstruction • Driving in congested traffic • Using a special purpose lane that you are allowed to be in. <p>Drivers are allowed to overtake on the left on all multi-lane roads</p> <p>You can only overtake another vehicle if you have a clear view of any approaching traffic and you can do so safely (and road markings and signs allow you to overtake).</p> <p>It is never legal to exceed the speed limit to overtake another vehicle</p>	

Country	Queensland, Australia	Japan
Road markings	<p>If you're approaching a pedestrian or children's crossing, you cannot overtake or pass a vehicle that is travelling in the same direction and has stopped, or is stopped at the crossing.</p> <p>Must not cross a double continuous centre line expect to safely to pass a cyclist</p> <p>Can overtake across a broken single centre line</p> <p>You can drive on a painted traffic island that is surrounded by a single continuous line for up to 50m to...</p> <ul style="list-style-type: none"> • Enter or leave the road • Enter a turning lane that begins immediately after the island. 	
Roundabouts	<p>When approaching a roundabout you must give way to all vehicles already on the roundabout.</p> <p>Turn left – must be in left lane</p> <p>Turn right – must be in right lane</p> <p>Straight – enter roundabout in either lane</p>	
Safe following distance	<p>Ideal condition - 2 seconds behind the vehicle in front</p> <p>Add 1 extra second for each 3m trailer length when towing a trailer or caravan</p>	
Special purpose lanes	<p>Bus lane: if you are operating a bicycle, bus, taxi, limousine, or emergency vehicle.</p> <p>Must give way to bicycles when moving into a bicycle lane. Cyclists can choose whether to use a bicycle lane – it isn't mandatory.</p> <p>T2 lanes – carrying 2 or more people</p> <p>T3 lanes – carrying 3 or more people</p> <p>If you travel in a special purpose lane illegally, you may be fined.</p>	

Country	Queensland, Australia	Japan
Traffic lights, U-turns, overhead lane controls	<p>Standard international operation</p> <p>You can only make a U-turn at traffic lights when there is a U-turn permitted sign</p> <p>Overhead controls: Must not travel in a lane marked with an illuminated red diagonal cross or pass a traffic sign above a lane displaying a red diagonal cross.</p>	<p>Standard international operation</p> <p>Flashing yellow light:</p> <ul style="list-style-type: none"> • Pedestrians, vehicles and streetcars/trams may proceed carefully, paying attention to other traffic. <p>Flashing red light:</p> <ul style="list-style-type: none"> • Pedestrians may proceed carefully, paying attention to other traffic. Vehicles and streetcars/trams must stop at the stopping point before proceeding. <p>Yellow arrow light:</p> <ul style="list-style-type: none"> • Streetcars/trams may proceed in the direction indicated by the arrow even if the signal light is yellow or red, but pedestrians and vehicles may not proceed. <p>Green arrow light:</p> <ul style="list-style-type: none"> • Vehicles may proceed in the direction indicated by the arrow even if the signal light is yellow or red (Vehicles may also make a U-turn when the signal arrow is indicating a right turn.) However, in the case of a signal arrow indicating a right turn, lightweight vehicles and mopeds making a two-step right turn may not proceed. <p>When the maximum or minimum speed is specified with road signs and displays, you must not exceed or drive slower than that speed limit.</p> <p>Use of mobile telephone or smartphones while driving in Japan is prohibited.</p>
Other common rules	<p>Hand-held phone illegal, able to use hands-free (open licence)</p> <p>BAC – legal limit .05% (open licence)</p>	



Country **Queensland, Australia**

Japan

BAC - legal limit .03%. It is highly recommended in Japan that drivers consume no alcohol at all.

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Table A.3. Australia and United Kingdom

Country	Queensland, Australia	United Kingdom
Web address	https://www.qld.gov.au/transport/safety/rules/road	https://www.gov.uk/guidance/the-highway-code
Direction of traffic	Left-hand side driving	Left-hand side driving
Changing lanes and merging	<p><i>Changing lanes:</i></p> <ul style="list-style-type: none"> • Must give way to any vehicle in the lane you are moving into. • Must indicate for long enough to give warning to others. <p><i>Merging:</i></p> <ul style="list-style-type: none"> • On roads where there are lanes marked on the road.... • Must give way to traffic already in lane you are moving into. <p><i>On road where there are no lanes marked on the road:</i></p> <ul style="list-style-type: none"> • Must give way to any vehicle that is ahead of you 	<p><i>Changing lanes:</i></p> <p>Rule 133</p> <ul style="list-style-type: none"> • If you need to change lane, first use your mirrors and if necessary take a quick sideways glance to make sure you will not force another road user to change course or speed. When it is safe to do so, signal to indicate your intentions to other road users and when clear, move over. <p>Rule 134</p> <ul style="list-style-type: none"> • You should follow the signs and road markings and get into the lane as directed. In congested road conditions do not change lanes unnecessarily. Merging in turn is recommended but only if safe and appropriate when vehicles are travelling at a very low speed, e.g. when approaching road works or a road traffic incident. It is not recommended at high speed. <p>Rule 151</p> <ul style="list-style-type: none"> • In slow moving traffic..... You should not change lanes to the left to overtake. <p><i>Merging:</i></p> <ul style="list-style-type: none"> • You should follow the signs and road markings and get into the lane as directed. In congested road conditions do not change lanes unnecessarily. Merging in turn is recommended

Country	Queensland, Australia	United Kingdom
		<p>but only if safe and appropriate when vehicles are travelling at a very low speed, e.g. when approaching road works or a road traffic incident. It is not recommended at high speed.</p>
<p>Giving way</p>	<p><i>You are required to give way when:</i></p> <ul style="list-style-type: none"> The rules say that you must Give way sign Stop or give way lines on the road You're turning right across the path of oncoming vehicle at an intersection You're turning left or right at a T-intersection You're moving onto a road from a driveway or land next to a road You're moving off from being stopped on the side of the road You're doing a U-turn You're turning left at an intersection with a 'left turn on red after stopping' sign <p><i>2 stop or give way signs:</i></p> <ul style="list-style-type: none"> Both vehicles must give way to other vehicles before they must give way to each other <p><i>1 stop or give way sign:</i></p> <ul style="list-style-type: none"> Vehicle with give way sign must give way to vehicle with stop sign <p><i>Giving way at uncontrolled crossroads (no traffic lights, lines, or signs):</i></p> <ul style="list-style-type: none"> Must give way to vehicles on your right <p><i>Giving way at a T-intersection:</i></p> <ul style="list-style-type: none"> Must give way to all vehicles; except those doing a U-turn - travelling on road continuing through intersection <p><i>Giving way when turning right:</i></p>	<p>Rule 172</p> <ul style="list-style-type: none"> The approach to a junction may have a 'Give Way' sign or a triangle marked on the road. You MUST give way to traffic on the main road when emerging from a junction with broken white lines across the road. <p>Rule 183</p> <ul style="list-style-type: none"> When turning a. keep as close to the left as is safe and practicable; b. give way to any vehicles using a bus lane, cycle lane or tramway from either direction. <p>Rule 189</p> <ul style="list-style-type: none"> At double mini-roundabouts treat each roundabout separately and give way to traffic from the right. <p>Reversing into a side road; look all around the vehicle and give way to any pedestrians who may be crossing the road.</p> <p><i>Joining the motorway:</i></p> <ul style="list-style-type: none"> When you join the motorway you will normally approach it from a road on the left (a slip road) or from an adjoining motorway. You should give priority to traffic already on the motorway.

Country	Queensland, Australia	United Kingdom
	<ul style="list-style-type: none"> When turning right at uncontrolled crossroad, you must give way to vehicles coming from opposite direction that are: driving straight ahead through the intersection, turning left at intersection. <p><i>Giving way when using slip lanes:</i></p> <ul style="list-style-type: none"> Must give way to all traffic already on the road you're entering (expect vehicles doing a U-turn) <p><i>Giving way to buses:</i></p> <ul style="list-style-type: none"> Build-up areas and speed limit is 70km/h or less – must give way to bus that displays a “give way to buses” sign, and signalling to enter traffic from: a bus zone, bus stop, the left side of the road. <p><i>Giving way when entering or leaving a road:</i></p> <ul style="list-style-type: none"> Must give way to all other vehicles and signal for at least 5 seconds when you drive on the road from a parked position on the side of the road or in a median strip. <p><i>Giving way to pedestrians and cyclists:</i></p> <ul style="list-style-type: none"> From private property or driveway - must give way to pedestrians or cyclists on the footpath or road and vehicles on the road you are entering. <p><i>Giving way to pedestrians and cyclists:</i></p> <ul style="list-style-type: none"> Must give way to pedestrians crossing a road you're turning into or entering 	
<p>Keeping left/right, Overtaking</p>	<p>Single-lane roads - stay as close to the left side</p> <p>Multi-lane roads - posted speed limit 90km/h or more, or if the road has a “keep left unless overtaking” sign, you must not drive in the right-hand lane unless...</p> <ul style="list-style-type: none"> Overtaking Turning right Making a U-turn Avoiding an obstruction 	<p><i>Motorways:</i></p> <p>Do not overtake on the left or move to a lane on your left to overtake. In congested conditions, where adjacent lanes of traffic are moving at similar speeds, traffic in left-hand lanes may sometimes be moving faster than traffic to the right. In these conditions you may keep up with the traffic in your lane even if this</p>

Country	Queensland, Australia	United Kingdom
	<ul style="list-style-type: none"> • Driving in congested traffic • Using a special purpose lane that you are allowed to be in. <p>Drivers are allowed to overtake on the left on all multi-lane roads</p> <p>You can only overtake another vehicle if you have a clear view of any approaching traffic and you can do so safely (and road markings and signs allow you to overtake).</p> <p>It is never legal to exceed the speed limit to overtake another vehicle</p> <p>If you're approaching a pedestrian or children's crossing, you cannot overtake or pass a vehicle that is travelling in the same direction and has stopped, or is stopped at the crossing.</p>	<p>means passing traffic in the lane to your right. Do not weave in and out of lanes to overtake.</p>
<p>Road markings</p>	<p>Must not cross a double continuous centre line expect to safely to pass a cyclist</p> <p>Can overtake across a broken single centre line</p> <p>You can drive on a painted traffic island that is surrounded by a single continuous line for up to 50m to...</p> <ul style="list-style-type: none"> • Enter or leave the road • Enter a turning lane that begins immediately after the island. 	<p>A broken white line. This marks the centre of the road. When this line lengthens and the gaps shorten, it means that there is a hazard ahead. Do not cross it unless you can see the road is clear and wish to overtake or turn off.</p> <p>Double white lines where the line nearest to you is broken. This means you may cross the lines to overtake if it is safe, provided you can complete the manoeuvre before reaching a solid white line on your side. White direction arrows on the road indicate that you need to get back onto your side of the road.</p> <p>Double white lines where the line nearest you is solid. This means you MUST NOT cross or straddle it unless it is safe and you need to enter adjoining premises or a</p>

Country	Queensland, Australia	United Kingdom
Roundabouts	<p>When approaching a roundabout you must give way to all vehicles already on the roundabout.</p> <p>Turn left – must be in left lane Turn right – must be in right lane Straight – enter roundabout in either lane.</p>	<p>side road. You may cross the line if necessary, provided the road is clear, to pass a stationary vehicle, or overtake a pedal cycle, horse or road maintenance vehicle, if they are travelling at 10 mph (16 km/h) or less.</p> <p>Areas of white diagonal stripes or chevrons painted on the road. These are to separate traffic lanes or to protect traffic turning right. If the area is bordered by a broken white line, you should not enter the area unless it is necessary and you can see that it is safe to do so. If the area is marked with chevrons and bordered by solid white lines you MUST NOT enter it except in an emergency.</p> <p>When reaching the roundabout you should:</p> <ul style="list-style-type: none"> • Give priority to traffic approaching from your right, unless directed otherwise by signs, road markings or traffic lights • Check whether road markings allow you to enter the roundabout without giving way. If so, proceed, but still look to the right before joining <p>Signals and position. When taking the first exit to the left, unless signs or markings indicate otherwise. Signal left and approach in the left-hand lane. Keep to the left on the roundabout and continue signalling left to leave.</p> <p>When taking an exit to the right or going full circle, unless signs or markings indicate otherwise. Signal right and approach in the right-hand lane. Keep to the right</p>

Country Queensland, Australia

United Kingdom

Safe following distance

Ideal condition - 2 seconds behind the vehicle in front
Add 1 extra second for each 3m trailer length when towing a trailer or caravan

Special purpose lanes

Bus lane: if you are operating a bicycle, bus, taxi, limousine, or emergency vehicle.
Must give way to bicycles when moving into a bicycle lane. Cyclists can choose whether to use a bicycle lane – it isn't mandatory.
T2 lanes – carrying 2 or more people
T3 lanes – carrying 3 or more people
If you travel in a special purpose lane illegally, you may be fined.

on the roundabout until you need to change lanes to exit the roundabout. Signal left after you have passed the exit before the one you want.

Mini-roundabouts. Approach these in the same way as normal roundabouts. All vehicles MUST pass round the central markings except large vehicles which are physically incapable of doing so.

Multiple roundabouts. At some complex junctions, there may be a series of mini-roundabouts at each intersection. Treat each mini-roundabout separately and follow the normal rules.

Allow at least a two-second gap between you and the vehicle in front on roads carrying faster-moving traffic and in tunnels where visibility is reduced. The gap should be at least doubled on wet roads and increased still further on icy roads.

Cycle lanes. These are shown by road markings and signs. You MUST NOT drive or park in a cycle lane marked by a solid white line during its times of operation. Do not drive or park in a cycle lane marked by a broken white line unless it is unavoidable. You MUST NOT park in any cycle lane whilst waiting restrictions apply.

Bus lanes. These are shown by road markings and signs that indicate which (if any) other vehicles are permitted to use the bus lane. Unless otherwise indicated, you should not drive in a bus lane during its period of

Country	Queensland, Australia	United Kingdom
Traffic lights, U-turns, overhead lane controls	<p>Standard international operation</p> <p>You can only make a U-turn at traffic lights when there is a U-turn permitted sign</p> <p>Overhead controls: Must not travel in a lane marked with an illuminated red diagonal cross or pass a traffic sign above a lane displaying a red diagonal cross.</p>	<p>operation. You may enter a bus lane to stop, to load or unload where this is not prohibited.</p> <p>High-occupancy vehicle lanes and other designated vehicle lanes. Lanes may be restricted for use by particular types of vehicle; these restrictions may apply some or all of the time. The operating times and vehicle types will be indicated on the accompanying traffic signs. You MUST NOT drive in such lanes during their times of operation unless signs indicate that your vehicle is permitted.</p> <p>Standard international operation</p> <p>Flashing red lights mean YOU MUST STOP (e.g., at level crossing, lifting bridges, airfields, fire stations etc.).</p> <p>Overhead lane control signals</p> <p>Green arrow - lane available to traffic facing the sign</p> <p>Red crosses - lane closed to traffic facing the sign</p>
Other common rules	<p>Hand-held phone illegal, able to use hands-free (open licence)</p> <p>BAC – legal limit .05% (open licence)</p>	<p>BAC limit – legal limit .08% (England, Wales, and Northern Ireland). BAC limit – legal limit .05% (Scotland)</p>

Table A.4. Australia and India

Country	Queensland, Australia	India
Web address	https://www.qld.gov.au/transport/safety/rules/road	http://delhigovt.nic.in/newdelhi/dept/transport/tr1a.asp
Direction of traffic	Left-hand side driving	Left-hand side driving
Changing lanes and merging	<p><i>Changing lanes:</i></p> <ul style="list-style-type: none"> • Must give way to any vehicle in the lane you are moving into. • Must indicate for long enough to give warning to others. <p><i>Merging:</i></p> <ul style="list-style-type: none"> • On roads where there are lanes marked on the road.... • Must give way to traffic already in lane you are moving into. <p><i>On road where there are no lanes marked on the road:</i></p> <ul style="list-style-type: none"> • Must give way to any vehicle that is ahead of you 	
Giving way	<p><i>You are required to give way when:</i></p> <ul style="list-style-type: none"> • The rules say that you must • Give way sign • Stop or give way lines on the road • You're turning right across the path of oncoming vehicle at an intersection • You're turning left or right at a T-intersection • You're moving onto a road from a driveway or land next to a road • You're moving off from being stopped on the side of the road 	<p>YOU MUST GIVE WAY to pedestrians when you are entering or leaving private property such as a driveway. If you cannot see whether anyone is coming, sound your horn and then drive out very slowly.</p> <p>At some crossroads there are no traffic lights or signs. When you come to one of these intersections you must give way to vehicles travelling in the intersection on your right. You must also give way to the right at</p>

Country	Queensland, Australia	India
	<ul style="list-style-type: none"> • You're doing a U-turn • You're turning left at an intersection with a 'left turn on red after stopping' sign <p><i>2 stop or give way signs:</i></p> <ul style="list-style-type: none"> • Both vehicles must give way to other vehicles before they must give way to each other <p><i>1 stop or give way sign:</i></p> <ul style="list-style-type: none"> • Vehicle with give way sign must give way to vehicle with stop sign <p><i>Giving way at uncontrolled crossroads (no traffic lights, lines, or signs):</i></p> <ul style="list-style-type: none"> • Must give way to vehicles on your right <p><i>Giving way at a T-intersection:</i></p> <ul style="list-style-type: none"> • Must give way to all vehicles; except those doing a U-turn - travelling on road continuing through intersection <p><i>Giving way when turning right:</i></p> <ul style="list-style-type: none"> • When turning right at uncontrolled crossroad, you must give way to vehicles coming from opposite direction that are: driving straight ahead through the intersection, turning left at intersection. <p><i>Giving way when using slip lanes:</i></p> <ul style="list-style-type: none"> • Must give way to all traffic already on the road you're entering (expect vehicles doing a U-turn) <p><i>Giving way to buses:</i></p> <ul style="list-style-type: none"> • Build-up areas and speed limit is 70km/h or less – must give way to bus that displays a “give way to buses” sign, and 	<p>intersections where the lights have failed. If yours and an oncoming vehicle are turning right at an intersection both cars should pass in front of each other.</p> <p>Give way to pedestrians at crossings that are not regulated.</p> <p>Give way to traffic already in the lane you are moving into.</p> <p>At T-intersections the vehicle travelling on the road that ends must give way to any vehicle travelling on the road that continues (unless otherwise sign-posted). The give way to the right rule does not apply to T-intersections.</p>

Country	Queensland, Australia	India
Keeping left/ right, Overtaking	<p>signalling to enter traffic from: a bus zone, bus stop, the left side of the road.</p> <p><i>Giving way when entering or leaving a road:</i></p> <ul style="list-style-type: none"> • Must give way to all other vehicles and signal for at least 5 seconds when you drive on the road from a parked position on the side of the road or in a median strip. <p><i>Giving way to pedestrians and cyclists:</i></p> <ul style="list-style-type: none"> • From private property or driveway - must give way to pedestrians or cyclists on the footpath or road and vehicles on the road you are entering. <p><i>Giving way to pedestrians and cyclists:</i></p> <ul style="list-style-type: none"> • Must give way to pedestrians crossing a road you're turning into or entering. 	<p>KEEP LEFT on a two-way road to allow traffic from the opposite direction to pass on your right and on a one-way road to allow vehicles behind you to overtake from your right.</p> <p>WHEN TURNING LEFT, keep to the left side of the road you are leaving as well as the one you are entering. When turning right, move to the centre of the road you are leaving and arrive near the left side of road you are entering.</p>
	<p>Single-lane roads - stay as close to the left side</p> <p>Multi-lane roads - posted speed limit 90km/h or more, or if the road has a "keep left unless overtaking" sign, you must not drive in the right-hand lane unless...</p> <ul style="list-style-type: none"> • Overtaking • Turning right • Making a U-turn • Avoiding an obstruction • Driving in congested traffic • Using a special purpose lane that you are allowed to be in. <p>Drivers are allowed to overtake on the left on all multi-lane roads</p>	

Country	Queensland, Australia	India
	<p>You can only overtake another vehicle if you have a clear view of any approaching traffic and you can do so safely (and road markings and signs allow you to overtake).</p> <p>It is never legal to exceed the speed limit to overtake another vehicle</p> <p>If you're approaching a pedestrian or children's crossing, you cannot overtake or pass a vehicle that is travelling in the same direction and has stopped, or is stopped at the crossing.</p>	<p>WHEN OVERTAKING do so from right of the vehicles you are passing.</p> <p>DO NOT OVERTAKE when you think it might endanger other traffic on the road; if the road ahead is not clearly visible, for example, near a bend or a hill. If you know that the vehicle behind you has begun to overtake you; if the driver ahead of you has not yet signalled his agreement that you pass him. If you cannot see for more than 150 metres ahead, because of a hill or curve or if the road is narrowing, avoid overtaking. If a vehicle has stopped at a pedestrian crossing, intersection or railway crossing, do not overtake it. In a multi-lane road, you must remember to give way to traffic already in the lane you are moving into.</p> <p>DO NOT OVERTAKE another vehicle that has stopped at a pedestrian school crossing.</p>
<p>Road markings</p>	<p>Must not cross a double continuous centre line expect to safely to pass a cyclist</p> <p>Can overtake across a broken single centre line</p> <p>You can drive on a painted traffic island that is surrounded by a single continuous line for up to 50m to...</p> <ul style="list-style-type: none"> • Enter or leave the road 	

Country	Queensland, Australia	India
Roundabouts	<ul style="list-style-type: none"> Enter a turning lane that begins immediately after the island. <p>When approaching a roundabout you must give way to all vehicles already on the roundabout.</p> <p>Turn left – must be in left lane</p> <p>Turn right – must be in right lane</p> <p>Straight – enter roundabout in either lane.</p>	<p>Give way to vehicles already on the road. If you are turning, as you approach or exit the roundabout, you must use your indicator to show where you are going. Always slow down and prepare to give way at a roundabout.</p> <p>If there are no lane demarcations, do not overtake from the left. Enter the roundabout when there is a safe gap in the traffic.</p> <p>When turning left, stay on the left. When going straight, from whichever lane you enter, drive in the same position through the roundabout. When turning right, drive close to the centre of the roundabout.</p>
Safe following distance	<p>Ideal condition - 2 seconds behind the vehicle in front</p> <p>Add 1 extra second for each 3m trailer length when towing a trailer or caravan</p>	
Special purpose lanes	<p>Bus lane: if you are operating a bicycle, bus, taxi, limousine, or emergency vehicle.</p> <p>Must give way to bicycles when moving into a bicycle lane. Cyclists can choose whether to use a bicycle lane – it isn't mandatory.</p> <p>T2 lanes – carrying 2 or more people</p>	

Country	Queensland, Australia	India
	<p>T3 lanes – carrying 3 or more people</p> <p>If you travel in a special purpose lane illegally, you may be fined.</p>	
Traffic lights, U-turns, overhead lane controls	<p>Standard international operation</p> <p>You can only make a U-turn at traffic lights when there is a U-turn permitted sign</p> <p>Overhead controls:</p> <p>Must not travel in a lane marked with an illuminated red diagonal cross or pass a traffic sign above a lane displaying a red diagonal cross.</p>	<p>Standard international operation</p> <p>Stop well before the stop line, and don't crowd the intersection.</p> <p>You are allowed to turn left at the red signal unless there is a sign specifically forbidding you to do so.</p> <p>WHEN TAKING A U-TURN signal by hand the way you would for a right turn, observing the traffic behind you in your rear view mirror at the same time. Do not take a U-turn where it is specifically prohibited.</p> <p>U-turns cannot be made at traffic lights, on high-ways or if your U-turn disrupts traffic.</p>
Other common rules	<p>Hand-held phone illegal, able to use hands-free (open licence)</p> <p>BAC – legal limit .05% (open licence)</p>	<p>BAC – legal limit .03%</p> <p>HAND SIGNALS are necessary at certain times. When slowing down, extend your right arm palm down and swing it up and down; when stopping, raise your forearm vertically outside the vehicle; when turning right or changing lane to the right hand side, extend</p>

Country	Queensland, Australia	India
		your right arm straight out, palm to the front; when turning left or changing lane to the left hand side, extend your right arm and rotate it in an anti-clockwise direction.

Table A.5. Australia and Hong Kong

Country	Queensland, Australia	Hong Kong
Web address	https://www.qld.gov.au/transport/safety/rules/road	http://www.td.gov.hk/en/road_safety/index.html http://www.td.gov.hk/en/road_safety/safe_motoring_guides/index.html http://www.td.gov.hk/en/road_safety/road_users_code/index/chapter_5_for_all_drivers/index.html
Direction of traffic	Left-hand side driving	Left-hand side driving
Changing lanes and merging	<p><i>Changing lanes:</i></p> <ul style="list-style-type: none"> • Must give way to any vehicle in the lane you are moving into. • Must indicate for long enough to give warning to others. <p><i>Merging:</i></p> <ul style="list-style-type: none"> • On roads where there are lanes marked on the road... • Must give way to traffic already in lane you are moving into. <p><i>On road where there are no lanes marked on the road:</i></p> <ul style="list-style-type: none"> • Must give way to any vehicle that is ahead of you 	<p><i>Merging:</i></p> <ul style="list-style-type: none"> • Joining an expressway: The slip road leads into an acceleration lane. Watch the Traffic on the main road and adjust your speed so that you can join the nearest lane in a suitable gap. After joining the lane, stay in the lane long enough to become accustomed to the speed of the Traffic before trying to change lanes.
Giving way	<p><i>You are required to give way when:</i></p> <ul style="list-style-type: none"> • The rules say that you must • Give way sign • Stop or give way lines on the road • You're turning right across the path of oncoming vehicle at an intersection • You're turning left or right at a T-intersection • You're moving onto a road from a driveway or land next to a road • You're moving off from being stopped on the side of the road • You're doing a U-turn • You're turning left at an intersection with a 'left turn on red' 	<p>The 'Give way' sign and road markings - you must give way at the line to traffic on the major road. Stop if necessary. Give way to pedestrians crossing or waiting to cross the minor road.</p> <p>You must give way to pedestrians on the roadway in a 'Pedestrian priority' zone. Traffic signs mark the beginning and end of the zone.</p>

Country	Queensland, Australia	Hong Kong
	<ul style="list-style-type: none"> • after stopping' sign <p><i>2 stop or give way signs:</i></p> <ul style="list-style-type: none"> • Both vehicles must give way to other vehicles before they must • give way to each other <p><i>1 stop or give way sign:</i></p> <ul style="list-style-type: none"> • Vehicle with give way sign must give way to vehicle with stop sign <p><i>Giving way at uncontrolled crossroads (no traffic lights, lines, or signs):</i></p> <ul style="list-style-type: none"> • Must give way to vehicles on your right <p><i>Giving way at a T-intersection:</i></p> <ul style="list-style-type: none"> • Must give way to all vehicles; except those doing a U-turn - travelling on road continuing through intersection <p><i>Giving way when turning right:</i></p> <ul style="list-style-type: none"> • When turning right at uncontrolled crossroad, you must give way to vehicles coming from opposite direction that are: driving straight ahead through the intersection, turning left at intersection. <p><i>Giving way when using slip lanes:</i></p> <ul style="list-style-type: none"> • Must give way to all traffic already on the road you're entering (expect vehicles doing a U-turn) <p><i>Giving way to buses:</i></p> <ul style="list-style-type: none"> • Build-up areas and speed limit is 70km/h or less – must give way to bus that displays a “give way to buses” sign, and signalling to enter traffic from: a bus zone, bus stop, the left side of the road. <p><i>Giving way when entering or leaving a road:</i></p> <ul style="list-style-type: none"> • Must give way to all other vehicles and signal for at least 5 seconds when you drive on the road from a parked position on the side of the road or in a median strip. <p><i>Giving way to pedestrians and cyclists:</i></p>	

Country	Queensland, Australia	Hong Kong
Keeping left/ right, Overtaking	<ul style="list-style-type: none"> From private property or driveway - must give way to pedestrians or cyclists on the footpath or road and vehicles on the road you are entering. <p><i>Giving way to pedestrians and cyclists:</i></p> <ul style="list-style-type: none"> Must give way to pedestrians crossing a road you're turning into or entering. 	
	<p>Single-lane roads - stay as close to the left side</p> <p>Multi-lane roads - posted speed limit 90km/h or more, or if the road has a "keep left unless overtaking" sign, you must not drive in the right-hand lane unless...</p> <ul style="list-style-type: none"> Overtaking Turning right Making a U-turn Avoiding an obstruction Driving in congested traffic Using a special purpose lane that you are allowed to be in. <p>Drivers are allowed to overtake on the left on all multi-lane roads</p> <p>You can only overtake another vehicle if you have a clear view of any approaching traffic and you can do so safely (and road markings and signs allow you to overtake).</p> <p>It is never legal to exceed the speed limit to overtake another vehicle</p> <p>If you're approaching a pedestrian or children's crossing, you cannot overtake or pass a vehicle that is travelling in the same direction and has stopped, or is stopped at the crossing.</p>	<p><i>Overtaking:</i></p> <p>Must not overtake....</p> <ul style="list-style-type: none"> If you would have to cross or drive on "double white" lines with the solid line nearer to you. If you are within the zigzag area on the approach to a Zebra crossing After a No overtaking sign On the approach to a tram stop When you cannot see far enough ahead to be sure that it is safe Where you might come into conflict with other road users Where it would involve driving over an area marked with hatched white lines. <p><i>Expressways and overtaking:</i></p> <p>Keep to the nearside lane of an expressway unless you are overtaking another vehicle, and overtake only on the offside of the other vehicle.</p> <p>Medium good vehicles, heavy goods vehicles and buses are prohibited from using the offside lane of an expressway where the carriageway has 3 or more traffic lanes.</p>

Country	Queensland, Australia	Hong Kong
Road markings	<p>Must not cross a double continuous centre line expect to safely to pass a cyclist Can overtake across a broken single centre line</p> <p>You can drive on a painted traffic island that is surrounded by a single continuous line for up to 50m to...</p> <ul style="list-style-type: none"> • Enter or leave the road • Enter a turning lane that begins immediately after the island. 	<p>Learner drivers are prohibited from using expressing ways, expect for emergencies or with special permission.</p> <p>Public light buses, special purpose vehicles, and any vehicle with an engine capacity under 125 c.c are not allowed to use an expressway, unless prior permission has been obtained from the Commissioner for Transport.</p>
Roundabouts	<p>When approaching a roundabout you must give way to all vehicles already on the roundabout.</p> <p>Turn left – must be in left lane Turn right – must be in right lane Straight – enter roundabout in either lane.</p>	<p>Give way to traffic on your right (unless road markings indicate otherwise). Give way to vehicles circulating in the roundabout. Do not enter a roundabout if the traffic is blocked.</p> <p>Signal left when you are about to leave the roundabout.</p> <p>Turn left – must be in left lane Turn right – must be in right lane Straight – outer lane</p>
Safe following distance	<p>Ideal condition - 2 seconds behind the vehicle in front Add 1 extra second for each 3m trailer length when towing a trailer or caravan</p>	

Country	Queensland, Australia	Hong Kong
Special purpose lanes	<p>Bus lane: if you are operating a bicycle, bus, taxi, limousine, or emergency vehicle.</p> <p>Must give way to bicycles when moving into a bicycle lane. Cyclists can choose whether to use a bicycle lane – it isn't mandatory.</p> <p>T2 lanes – carrying 2 or more people</p> <p>T3 lanes – carrying 3 or more people</p> <p>If you travel in a special purpose lane illegally, you may be fined.</p>	<p>A typical bus lane is indicated by signs and markings. It is operated for the period as shown and can be used exclusively for all buses, including the franchised and non-franchised.</p>
Traffic lights, U-turns, overhead lane controls	<p>Standard international operation</p> <p>You can only make a U-turn at traffic lights when there is a U-turn permitted sign</p> <p>Overhead controls:</p> <p>Must not travel in a lane marked with an illuminated red diagonal cross or pass a traffic sign above a lane displaying a red diagonal cross.</p>	<p>Standard international operation</p> <p>When the amber light comes on while the red light is still on you must remain stationary, but may get ready to cross the junction or pedestrian crossing when the green light shows, provided that it is safe to do so.</p> <p>You must not carry out a U-turn or turn your vehicle around in a road, unless you can do so without endangering or obstructing other road users. A U-turn may be banned at some junctions or along some lengths of road. 'No U-turn' signs will indicate this.</p>
Other common rules	<p>Hand-held phone illegal, able to use hands-free (open licence)</p> <p>BAC – legal limit .05% (open licence)</p>	<p>Hand-held phone illegal, able to use hands-free</p> <p>BAC – legal limit .05%</p>

Table A.6. Australia and United States

Country	Queensland, Australia	United States
Web address	https://www.qld.gov.au/transport/safety/rules/road	https://www.dmv.org/travel/us-road-rules.php https://www.dmv.org/safety-laws.php
Direction of traffic	Left-hand side driving	Right-hand side driving
Changing lanes and merging	<p><i>Changing lanes:</i></p> <ul style="list-style-type: none"> • Must give way to any vehicle in the lane you are moving into. • Must indicate for long enough to give warning to others. <p><i>Merging:</i></p> <ul style="list-style-type: none"> • On roads where there are lanes marked on the road... • Must give way to traffic already in lane you are moving into. <p><i>On road where there are no lanes marked on the road:</i></p> <ul style="list-style-type: none"> • Must give way to any vehicle that is ahead of you 	
Giving way	<p><i>You are required to give way when:</i></p> <ul style="list-style-type: none"> • The rules say that you must • Give way sign • Stop or give way lines on the road • You're turning right across the path of oncoming vehicle at an intersection • You're turning left or right at a T-intersection • You're moving onto a road from a driveway or land next to a road • You're moving off from being stopped on the side of the road • You're doing a U-turn • You're turning left at an intersection with a 'left turn on red after stopping' sign <p><i>2 stop or give way signs:</i></p> <ul style="list-style-type: none"> • Both vehicles must give way to other vehicles before they must 	<p>Pedestrians always have the legal right of way. If you see someone crossing the street, you must come to a full stop for them.</p> <p>Yield signs (red or yellow and triangular in shape) indicate that oncoming traffic has the right of way, and you need to wait for the road to clear before progressing.</p> <p>When crossing an intersection without a stop or yield sign, decrease your speed and be ready to stop if necessary. Yield to pedestrians, cyclists, or other vehicles already in the intersection.</p>

Country	Queensland, Australia	United States
	<ul style="list-style-type: none"> • give way to each other <p><i>1 stop or give way sign:</i></p> <ul style="list-style-type: none"> • Vehicle with give way sign must give way to vehicle with stop sign <p><i>Giving way at uncontrolled crossroads (no traffic lights, lines, or signs):</i></p> <ul style="list-style-type: none"> • Must give way to vehicles on your right <p><i>Giving way at a T-intersection:</i></p> <ul style="list-style-type: none"> • Must give way to all vehicles; except those doing a U-turn - travelling on road continuing through intersection <p><i>Giving way when turning right:</i></p> <ul style="list-style-type: none"> • When turning right at uncontrolled crossroad, you must give way to vehicles coming from opposite direction that are: driving straight ahead through the intersection, turning left at intersection. <p><i>Giving way when using slip lanes:</i></p> <ul style="list-style-type: none"> • Must give way to all traffic already on the road you're entering (expect vehicles doing a U-turn) <p><i>Giving way to buses:</i></p> <ul style="list-style-type: none"> • Build-up areas and speed limit is 70km/h or less – must give way to bus that displays a “give way to buses” sign, and signalling to enter traffic from: a bus zone, bus stop, the left side of the road. <p><i>Giving way when entering or leaving a road:</i></p> <ul style="list-style-type: none"> • Must give way to all other vehicles and signal for at least 5 seconds when you drive on the road from a parked position on the side of the road or in a median strip. <p><i>Giving way to pedestrians and cyclists:</i></p> <ul style="list-style-type: none"> • From private property or driveway - must give way to pedestrians or cyclists on the footpath or road and vehicles on the road you are entering. <p><i>Giving way to pedestrians and cyclists:</i></p>	<p>You should always obey right-of-way rules. Extra caution should be given when encountering: Pedestrians, motorcycle riders, and bicyclists.</p> <p>If you're behind a school bus with flashing red lights, you may NOT pass it until the lights have stopped flashing.</p>

Country	Queensland, Australia	United States
<p>Keeping left/ right, Overtaking</p>	<ul style="list-style-type: none"> • Must give way to pedestrians crossing a road you're turning into or entering. <p>Single-lane roads - stay as close to the left side Multi-lane roads - posted speed limit 90km/h or more, or if the road has a "keep left unless overtaking" sign, you must not drive in the right-hand lane unless...</p> <ul style="list-style-type: none"> • Overtaking • Turning right • Making a U-turn • Avoiding an obstruction • Driving in congested traffic • Using a special purpose lane that you are allowed to be in. <p>Drivers are allowed to overtake on the left on all multi-lane roads</p> <p>You can only overtake another vehicle if you have a clear view of any approaching traffic and you can do so safely (and road markings and signs allow you to overtake).</p> <p>It is never legal to exceed the speed limit to overtake another vehicle</p> <p>If you're approaching a pedestrian or children's crossing, you cannot overtake or pass a vehicle that is travelling in the same direction and has stopped, or is stopped at the crossing.</p>	<p>White lines are used to separate lanes of traffic moving in the same direction.</p> <p>Yellow lines are used to separate traffic headed in opposite directions.</p>
<p>Road markings</p>	<p>Must not cross a double continuous centre line except to safely to pass a cyclist</p> <p>Can overtake across a broken single centre line</p>	

Country	Queensland, Australia	United States
	<p>You can drive on a painted traffic island that is surrounded by a single continuous line for up to 50m to...</p> <ul style="list-style-type: none"> • Enter or leave the road • Enter a turning lane that begins immediately after the island. 	<p>Do NOT cross into lanes separated by lines that are solid yellow.</p> <p>If the yellow line is broken, cross/pass with caution, but be highly aware of oncoming traffic.</p>
Roundabouts	<p>When approaching a roundabout you must give way to all vehicles already on the roundabout.</p> <p>Turn left – must be in left lane Turn right – must be in right lane Straight – enter roundabout in either lane.</p>	<p>When in roundabouts:</p> <ul style="list-style-type: none"> • Yield to all traffic already in the circle • Enter only when there is a gap in traffic • Watch for pedestrians in crosswalks
Safe following distance	<p>Ideal condition - 2 seconds behind the vehicle in front Add 1 extra second for each 3m trailer length when towing a trailer or caravan</p>	
Special purpose lanes	<p>Bus lane: if you are operating a bicycle, bus, taxi, limousine, or emergency vehicle.</p> <p>Must give way to bicycles when moving into a bicycle lane. Cyclists can choose whether to use a bicycle lane – it isn't mandatory.</p> <p>T2 lanes – carrying 2 or more people T3 lanes – carrying 3 or more people</p> <p>If you travel in a special purpose lane illegally, you may be fined.</p>	<p>Carpool/HOV lanes are typically located on the far left side of U.S. freeways.</p>
Traffic lights, U-turns, overhead lane controls	<p>Standard international operation</p> <p>You can only make a U-turn at traffic lights when there is a U-turn permitted sign</p> <p>Overhead controls: Must not travel in a lane marked with an illuminated red diagonal cross or pass a traffic sign above a lane displaying a red diagonal cross.</p>	<p>Standard international operation</p> <p>Unless otherwise indicated, you are legally allowed to make right turns at red lights.</p>
Other common rules	<p>Hand-held phone illegal, able to use hands-free (open licence) BAC – legal limit .05% (open licence)</p>	<p>BAC – legal limit .08% (21 years and older)</p>



Country **Queensland, Australia**

United States

In some states, bicyclists are required to ride in the street; while some cities have designated bike lanes, others do not.

Speed limits are posted on the sides of roads, and indicate (in miles per hour) the minimum and maximum speeds you're legally allowed to drive in that area.

Table A.7. Australia and Ireland

Country	Queensland, Australia	Ireland
Web address	https://www.qld.gov.au/transport/safety/rules/road	http://www.rsa.ie/en/RSA/Licensed-Drivers/Driving-in-Ireland/ http://www.rulesoftheroad.ie/Rules_of_the_road.pdf
Direction of traffic	Left-hand side driving	Left-hand side driving
Changing lanes and merging	<p><i>Changing lanes:</i></p> <ul style="list-style-type: none"> • Must give way to any vehicle in the lane you are moving into. • Must indicate for long enough to give warning to others. <p><i>Merging:</i></p> <ul style="list-style-type: none"> • On roads where there are lanes marked on the road,... • Must give way to traffic already in lane you are moving into. <p><i>On road where there are no lanes marked on the road:</i></p> <ul style="list-style-type: none"> • Must give way to any vehicle that is ahead of you 	<p>Don't move from one traffic lane to another without good reason. You must give way to traffic already in the lane into which you are moving.</p>
Giving way	<p><i>You are required to give way when:</i></p> <ul style="list-style-type: none"> • The rules say that you must • Give way sign • Stop or give way lines on the road • You're turning right across the path of oncoming vehicle at an intersection • You're turning left or right at a T-intersection • You're moving onto a road from a driveway or land next to a road • You're moving off from being stopped on the side of the road • You're doing a U-turn • You're turning left at an intersection with a 'left turn on red after stopping' sign <p><i>2 stop or give way signs:</i></p>	<p>Allow signalling buses back into the stream of traffic after they let passengers on and off.</p> <p>If you are at a junction where there is an advanced stop line for cyclists, you should allow cyclists to move off ahead of you.</p> <p>Traffic travelling straight ahead in either direction along a major road generally has right of way at all times.</p> <p>If you are at a junction where the roads are of equal importance, the traffic on your right has right of way.</p>

- Both vehicles must give way to other vehicles before they must give way to each other

1 stop or give way sign:

- Vehicle with give way sign must give way to vehicle with stop sign

Giving way at uncontrolled crossroads (no traffic lights, lines, or signs):

- Must give way to vehicles on your right

Giving way at a T-intersection:

- Must give way to all vehicles; except those doing a U-turn - travelling on road continuing through intersection

Giving way when turning right:

- When turning right at uncontrolled crossroad, you must give way to vehicles coming from opposite direction that are: driving straight ahead through the intersection, turning left at intersection.

Giving way when using slip lanes:

- Must give way to all traffic already on the road you're entering (expect vehicles doing a U-turn)

Giving way to buses:

- Build-up areas and speed limit is 70km/h or less – must give way to bus that displays a “give way to buses” sign, and signalling to enter traffic from: a bus zone, bus stop, the left side of the road.

Giving way when entering or leaving a road:

- Must give way to all other vehicles and signal for at least 5 seconds when you drive on the road from a parked position on the side of the road or in a median strip.

Giving way to pedestrians and cyclists:

- From private property or driveway - must give way to pedestrians or cyclists on the footpath or road and vehicles on the road you are entering.

Giving way to pedestrians and cyclists:

If you are turning right at a junction, the traffic coming straight through the junction from the opposite direction has right of way.

If you plan to turn right at a junction and a vehicle from the opposite direction wants to turn into the same road, the vehicle that is turning left has right of way.

If you are approaching a junction with a major road, you must yield to other traffic.

	<ul style="list-style-type: none"> • Must give way to pedestrians crossing a road you're turning into or entering. 	
<p>Keeping left/right, Overtaking</p>	<p>Single-lane roads - stay as close to the left side</p> <p>Multi-lane roads - posted speed limit 90km/h or more, or if the road has a "keep left unless overtaking" sign, you must not drive in the right-hand lane unless...</p> <ul style="list-style-type: none"> • Overtaking • Turning right • Making a U-turn • Avoiding an obstruction • Driving in congested traffic • Using a special purpose lane that you are allowed to be in. <p>Drivers are allowed to overtake on the left on all multi-lane roads</p> <p>You can only overtake another vehicle if you have a clear view of any approaching traffic and you can do so safely (and road markings and signs allow you to overtake).</p> <p>It is never legal to exceed the speed limit to overtake another vehicle</p> <p>If you're approaching a pedestrian or children's crossing, you cannot overtake or pass a vehicle that is travelling in the same direction and has stopped, or is stopped at the crossing.</p>	<p>Drive your vehicle far enough to the left to allow traffic to safely pass or overtake on the right.</p> <p>When overtaking, never cross a continuous white line.</p> <p>You must not break the speed limit, even when overtaking.</p> <p>You must not overtake when:</p> <ul style="list-style-type: none"> • You are at or near a pelican crossing, zebra crossing, or at pedestrian signals • A traffic sign or road marking prohibits it • You are approaching a junction • You are on the approach to a corner, bend, dip in the road, hump-back bridge, brow of a hill, or on a narrow road • You are in the left-hand lane of a dual carriageway or motorway when traffic is moving at normal speed • It would at any time cause danger or inconvenience to another road user.
<p>Road markings</p>	<p>Must not cross a double continuous centre line except to safely to pass a cyclist</p> <p>Can overtake across a broken single centre line</p> <p>You can drive on a painted traffic island that is surrounded by a single continuous line for up to 50m to...</p>	<p>Single or double continuous white lines along the centre of the road - all traffic must keep to the left of the line.</p> <p>Longer white lines/ warning lines along the centre of the road - these warning lines alert drivers to hazards, such as restricted vision, approach to a junction,</p>

- Enter or leave the road
- Enter a turning lane that begins immediately after the island.

approach to a roundabout, a hill, crests, bends and continuous white lines ahead.

Short broken white lines along the centre - these divide two lanes of traffic travelling in opposite directions. You must not cross them unless it is safe to do so.

Double broken white lines along the centre of the road - These alert drivers to continuous white lines a short distance ahead. As a driver, you must not cross them unless it is safe to do so.

A broken white line with a single white line along the centre of the road - The driver must obey the line that is nearest to them.

A single broken yellow line along the side of the road - This road contains a hard shoulder, which is normally only for pedestrians and cyclists.

Double yellow line on side of road = no parking at any time.

Roundabouts

When approaching a roundabout you must give way to all vehicles already on the roundabout.

Turn left - must be in left lane

Turn right - must be in right lane

Straight - enter roundabout in either lane.

Turn left - must be in left lane

Turn right - must be in right lane

Going straight ahead - approach in left lane (unless road markings say otherwise).

Only signal to leave the roundabout after you have passed the exit before yours.

Safe following distance

Ideal condition - 2 seconds behind the vehicle in front

Add 1 extra second for each 3m trailer length when towing a trailer or caravan

Two second rule (clear conditions). In wet weather, double the distance between your vehicle and the one in front.

		Give extra space (at least 1.5 metres) when overtaking a cyclist.
Special purpose lanes	<p>Bus lane: if you are operating a bicycle, bus, taxi, limousine, or emergency vehicle.</p> <p>Must give way to bicycles when moving into a bicycle lane. Cyclists can choose whether to use a bicycle lane – it isn't mandatory.</p> <p>T2 lanes – carrying 2 or more people</p> <p>T3 lanes – carrying 3 or more people</p> <p>If you travel in a special purpose lane illegally, you may be fined.</p>	
Traffic lights, U-turns, overhead lane controls	<p>Standard international operation</p> <p>You can only make a U-turn at traffic lights when there is a U-turn permitted sign</p> <p>Overhead controls:</p> <p>Must not travel in a lane marked with an illuminated red diagonal cross or pass a traffic sign above a lane displaying a red diagonal cross.</p>	<p>Standard international operation</p> <p>You must not make a U-turn unless traffic conditions make it completely safe to do so.</p> <p>Not allowed to make U-turns when there is a No U-turn sign prohibiting a U-turn.</p> <p>Overhead control lanes:</p> <p>A green arrow pointing down means that lane is open and you can proceed in that lane.</p> <p>A red X means the lane is closed. You must stop. You must not pass this sign. It has the same effect as a stop sign.</p> <p>A green arrow pointing to the left means you must move into the left-hand lane.</p> <p>A green arrow pointing to the right means you must move into the right-hand lane.</p>
Other common rules	<p>Hand-held phone illegal, able to use hands-free (open licence)</p> <p>BAC – legal limit .05% (open licence)</p>	<p>Illegal to hold a mobile phone while driving</p> <p>BAC – legal limit .05%</p>

Table A.8. Australia and Germany

Country	Queensland, Australia	Germany
Web address	https://www.qld.gov.au/transport/safety/rules/road	http://ec.europa.eu/transport/road_safety/going_abroad/germany/index_en.htm https://www.bmvi.de/SharedDocs/EN/publications/german-road-traffic-regulations.pdf?blob=publicationFile http://www.auguszt.de/english/VZ/zeichen4.htm
Direction of traffic	Left-hand side driving	Right-hand side driving
Changing lanes and merging	<p><i>Changing lanes:</i></p> <ul style="list-style-type: none"> • Must give way to any vehicle in the lane you are moving into. • Must indicate for long enough to give warning to others. <p><i>Merging:</i></p> <ul style="list-style-type: none"> • On roads where there are lanes marked on the road.... • Must give way to traffic already in lane you are moving into. <p><i>On road where there are no lanes marked on the road:</i></p> <ul style="list-style-type: none"> • Must give way to any vehicle that is ahead of you 	
Giving way	<p><i>You are required to give way when:</i></p> <ul style="list-style-type: none"> • The rules say that you must • Give way sign • Stop or give way lines on the road • You're turning right across the path of oncoming vehicle at an intersection • You're turning left or right at a T-intersection • You're moving onto a road from a driveway or land next to a road • You're moving off from being stopped on the side of the road • You're doing a U-turn 	<p>At intersections and junctions, vehicles coming from the right have the right of way. This does not apply:</p> <ul style="list-style-type: none"> • If the right of way is specially regulated by traffic signs (sign 205, 206, 301, 306); or • To vehicles entering the road from an earth track or forest path.

Country	Queensland, Australia	Germany
	<ul style="list-style-type: none"> • You're turning left at an intersection with a 'left turn on red after stopping' sign <p><i>2 stop or give way signs:</i></p> <ul style="list-style-type: none"> • Both vehicles must give way to other vehicles before they must give way to each other <p><i>1 stop or give way sign:</i></p> <ul style="list-style-type: none"> • Vehicle with give way sign must give way to vehicle with stop sign <p><i>Giving way at uncontrolled crossroads (no traffic lights, lines, or signs):</i></p> <ul style="list-style-type: none"> • Must give way to vehicles on your right <p><i>Giving way at a T-intersection:</i></p> <ul style="list-style-type: none"> • Must give way to all vehicles; except those doing a U-turn - travelling on road continuing through intersection <p><i>Giving way when turning right:</i></p> <ul style="list-style-type: none"> • When turning right at uncontrolled crossroad, you must give way to vehicles coming from opposite direction that are: driving straight ahead through the intersection, turning left at intersection. <p><i>Giving way when using slip lanes:</i></p> <ul style="list-style-type: none"> • Must give way to all traffic already on the road you're entering (expect vehicles doing a U-turn) <p><i>Giving way to buses:</i></p> <ul style="list-style-type: none"> • Build-up areas and speed limit is 70km/h or less – must give way to bus that displays a “give way to buses” sign, and signalling to enter traffic from: a bus zone, bus stop, the left side of the road. <p><i>Giving way when entering or leaving a road:</i></p> <ul style="list-style-type: none"> • Must give way to all other vehicles and signal for at least 5 seconds when you drive on the road from a parked position on the side of the road or in a median strip. <p><i>Giving way to pedestrians and cyclists:</i></p>	

Country	Queensland, Australia	Germany
	<ul style="list-style-type: none"> From private property or driveway - must give way to pedestrians or cyclists on the footpath or road and vehicles on the road you are entering. <p><i>Giving way to pedestrians and cyclists:</i></p> <ul style="list-style-type: none"> Must give way to pedestrians crossing a road you're turning into or entering. 	
<p>Keeping left/right, Overtaking</p>	<p>Single-lane roads - stay as close to the left side</p> <p>Multi-lane roads - posted speed limit 90km/h or more, or if the road has a "keep left unless overtaking" sign, you must not drive in the right-hand lane unless...</p> <ul style="list-style-type: none"> Overtaking Turning right Making a U-turn Avoiding an obstruction Driving in congested traffic Using a special purpose lane that you are allowed to be in. <p>Drivers are allowed to overtake on the left on all multi-lane roads</p> <p>You can only overtake another vehicle if you have a clear view of any approaching traffic and you can do so safely (and road markings and signs allow you to overtake).</p> <p>It is never legal to exceed the speed limit to overtake another vehicle</p> <p>If you're approaching a pedestrian or children's crossing, you cannot overtake or pass a vehicle that is travelling in the same direction and has stopped, or is stopped at the crossing.</p>	<p>Overtake on the left</p> <p>May overtake only if can see that, during the entire overtaking manoeuvre, there will be no oncoming traffic.</p> <p>May overtake only if travel at a speed substantially higher than that of the vehicle to be overtaken.</p> <p>Overtaking not permitted:</p> <ul style="list-style-type: none"> If traffic situation is not clear Where it is prohibited by a traffic sign (sign 276, 277) Mass exceeding 7.5 tonnes must not overtake if, owing to fog, snowfall or rain, or visibility is less than 50 meters.

Country	Queensland, Australia	Germany
Road markings	<p>Must not cross a double continuous centre line expect to safely to pass a cyclist</p> <p>Can overtake across a broken single centre line</p> <p>You can drive on a painted traffic island that is surrounded by a single continuous line for up to 50m to...</p> <ul style="list-style-type: none"> • Enter or leave the road • Enter a turning lane that begins immediately after the island. 	<p>Yellow markings are used in constructions areas. These markings supersede all of the white markings.</p> <p>Solid centre line = no passing. Broken line on one side = passing in one direction.</p> <p>Short broken lines between opposing traffic lanes indicate that the passing zone is ending. Long broken lines between opposing traffic lanes indicate that passing is allowed.</p>
Roundabouts	<p>When approaching a roundabout you must give way to all vehicles already on the roundabout.</p> <p>Turn left – must be in left lane Turn right – must be in right lane Straight – enter roundabout in either lane.</p>	<p>If at the approach to a roundabout, sign 215 (roundabout) is placed below sign 205 (give way), traffic on the roundabout has the right of way.</p>
Safe following distance	<p>Ideal condition - 2 seconds behind the vehicle in front</p> <p>Add 1 extra second for each 3m trailer length when towing a trailer or caravan</p>	
Special purpose lanes	<p>Bus lane: if you are operating a bicycle, bus, taxi, limousine, or emergency vehicle.</p> <p>Must give way to bicycles when moving into a bicycle lane. Cyclists can choose whether to use a bicycle lane – it isn't mandatory.</p> <p>T2 lanes – carrying 2 or more people T3 lanes – carrying 3 or more people</p> <p>If you travel in a special purpose lane illegally, you may be fined.</p>	<p>The emergency lane may not be used except where this is expressly permitted.</p> <p>Specific lanes reserved for buses and coaches in regular service are marked by road signs.</p> <p>Forbidden lanes are indicated by road signs.</p>
Traffic lights, U-turns, overhead lane controls	<p>Standard international operation</p> <p>You can only make a U-turn at traffic lights when there is a U-turn permitted sign</p> <p>Overhead controls:</p>	<p>Standard international operation</p> <p>Red light (or flashing amber light) at level crossings (rail/ road intersections): you must stop and wait at the crossing sign.</p>

Country	Queensland, Australia	Germany
Other common rules	<p>Must not travel in a lane marked with an illuminated red diagonal cross or pass a traffic sign above a lane displaying a red diagonal cross.</p> <p>Hand-held phone illegal, able to use hands-free (open licence) BAC – legal limit .05% (open licence)</p>	<p>Flashing red arrow at level crossings: you must stop and wait only if intending to turn in the direction of the arrow.</p> <p>A red light in the shape of a cross means that the lane may not be used (or stopped in).</p> <p>Drivers must not use their mobile phones without a hands-free set BAC- legal limit .05%</p>

Table A.9. Australia and Netherlands

Country	Queensland, Australia	Netherlands
Web address	https://www.qld.gov.au/transport/safety/rules/road	http://ec.europa.eu/transport/road_safety/going_abroad/netherlands/index_en.htm https://www.government.nl/topics/mobility-public-transport-and-road-safety Pdf document: Road Traffic Signs Regulations in the Netherlands. Published by the Ministry of Infrastructure and the Environment
Direction of traffic	Left-hand side driving	Right-hand side driving
Changing lanes and merging	<p><i>Changing lanes:</i></p> <ul style="list-style-type: none"> • Must give way to any vehicle in the lane you are moving into. • Must indicate for long enough to give warning to others. <p><i>Merging:</i></p> <ul style="list-style-type: none"> • On roads where there are lanes marked on the road.... • Must give way to traffic already in lane you are moving into. <p><i>On road where there are no lanes marked on the road:</i></p> <ul style="list-style-type: none"> • Must give way to any vehicle that is ahead of you 	
Giving way	<p><i>You are required to give way when:</i></p> <ul style="list-style-type: none"> • The rules say that you must • Give way sign • Stop or give way lines on the road • You're turning right across the path of oncoming vehicle at an intersection • You're turning left or right at a T-intersection • You're moving onto a road from a driveway or land next to a road • You're moving off from being stopped on the side of the road • You're doing a U-turn 	<p>Unless otherwise signposted, vehicles coming from the right have priority. The following exceptions exist to this rule:</p> <ul style="list-style-type: none"> • Drivers on unpaved roads must give priority to drivers on paved roads • All drivers must give priority to tram drivers. <p>Buses have priority when pulling out.</p>

Country	Queensland, Australia	Netherlands
	<ul style="list-style-type: none"> You're turning left at an intersection with a 'left turn on red after stopping' sign <p><i>2 stop or give way signs:</i></p> <ul style="list-style-type: none"> Both vehicles must give way to other vehicles before they must give way to each other <p><i>1 stop or give way sign:</i></p> <ul style="list-style-type: none"> Vehicle with give way sign must give way to vehicle with stop sign <p><i>Giving way at uncontrolled crossroads (no traffic lights, lines, or signs):</i></p> <ul style="list-style-type: none"> Must give way to vehicles on your right <p><i>Giving way at a T-intersection:</i></p> <ul style="list-style-type: none"> Must give way to all vehicles; except those doing a U-turn - travelling on road continuing through intersection <p><i>Giving way when turning right:</i></p> <ul style="list-style-type: none"> When turning right at uncontrolled crossroad, you must give way to vehicles coming from opposite direction that are: driving straight ahead through the intersection, turning left at intersection. <p><i>Giving way when using slip lanes:</i></p> <ul style="list-style-type: none"> Must give way to all traffic already on the road you're entering (expect vehicles doing a U-turn) <p><i>Giving way to buses:</i></p> <ul style="list-style-type: none"> Build-up areas and speed limit is 70km/h or less – must give way to bus that displays a “give way to buses” sign, and signalling to enter traffic from: a bus zone, bus stop, the left side of the road. <p><i>Giving way when entering or leaving a road:</i></p> <ul style="list-style-type: none"> Must give way to all other vehicles and signal for at least 5 seconds when you drive on the road from a parked position on the side of the road or in a median strip. <p><i>Giving way to pedestrians and cyclists:</i></p>	

Country	Queensland, Australia	Netherlands
	<ul style="list-style-type: none"> From private property or driveway - must give way to pedestrians or cyclists on the footpath or road and vehicles on the road you are entering. <p><i>Giving way to pedestrians and cyclists:</i></p> <ul style="list-style-type: none"> Must give way to pedestrians crossing a road you're turning into or entering. 	
<p>Keeping left/right, Overtaking</p>	<p>Single-lane roads - stay as close to the left side</p> <p>Multi-lane roads - posted speed limit 90km/h or more, or if the road has a "keep left unless overtaking" sign, you must not drive in the right-hand lane unless...</p> <ul style="list-style-type: none"> Overtaking Turning right Making a U-turn Avoiding an obstruction Driving in congested traffic Using a special purpose lane that you are allowed to be in. <p>Drivers are allowed to overtake on the left on all multi-lane roads</p> <p>You can only overtake another vehicle if you have a clear view of any approaching traffic and you can do so safely (and road markings and signs allow you to overtake).</p> <p>It is never legal to exceed the speed limit to overtake another vehicle</p> <p>If you're approaching a pedestrian or children's crossing, you cannot overtake or pass a vehicle that is travelling in the same direction and has stopped, or is stopped at the crossing.</p>	<p>All overtaking must be carried out on the left.</p> <p>Traffic queues may be overtaken on the right.</p> <p>It is not permitted to overtake a vehicle directly before or on a pedestrian crossing.</p> <p>Drivers are required to keep as far over to the right as possible.</p>

Country	Queensland, Australia	Netherlands
Road markings	<p>Must not cross a double continuous centre line expect to safely to pass a cyclist</p> <p>Can overtake across a broken single centre line</p> <p>You can drive on a painted traffic island that is surrounded by a single continuous line for up to 50m to...</p> <ul style="list-style-type: none"> • Enter or leave the road • Enter a turning lane that begins immediately after the island. 	<p>A continuous line that is not along the edge of the surface of the carriageway may not be crossed, unless:</p> <ul style="list-style-type: none"> • The line is crossed in order to enter or leave a refuge section, hard shoulder or rush hour lane situated alongside the driving lane that the driver has been following. • A broken line has been painted on the side of the carriageway from which the vehicle crosses • The continuous line is situated between lanes for traffic travelling in opposite directions and where a broken line has been painted on the right-hand side of the continuous line • The continuous line is situated between a driving lane and a cycle track which the driver is entitled to use by virtue of Article 10, part 2.
Roundabouts	<p>When approaching a roundabout you must give way to all vehicles already on the roundabout.</p> <p>Turn left – must be in left lane</p> <p>Turn right – must be in right lane</p> <p>Straight – enter roundabout in either lane.</p>	<p>Drivers of motor vehicles and moped riders driving along a main road are permitted to drive in a lane other than the right hand lane when entering or driving round a roundabout.</p> <p>Drivers are permitted to overtake on the right when entering or driving round a roundabout.</p>
Safe following distance	<p>Ideal condition - 2 seconds behind the vehicle in front</p> <p>Add 1 extra second for each 3m trailer length when towing a trailer or caravan</p>	
Special purpose lanes	<p>Bus lane: if you are operating a bicycle, bus, taxi, limousine, or emergency vehicle.</p> <p>Must give way to bicycles when moving into a bicycle lane. Cyclists can choose whether to use a bicycle lane – it isn't mandatory.</p>	<p>Bike lanes marked with continuous stripes are forbidden to other vehicles.</p>

Country	Queensland, Australia	Netherlands
Traffic lights, U-turns, overhead lane controls	<p>T2 lanes – carrying 2 or more people</p> <p>T3 lanes – carrying 3 or more people</p> <p>If you travel in a special purpose lane illegally, you may be fined.</p> <p>Standard international operation</p> <p>You can only make a U-turn at traffic lights when there is a U-turn permitted sign</p> <p>Overhead controls:</p> <p>Must not travel in a lane marked with an illuminated red diagonal cross or pass a traffic sign above a lane displaying a red diagonal cross.</p>	<p>Bus lanes marked with the word "BUS" may be used only by drivers of scheduled buses, coaches, or trams.</p> <p>Bus lanes marked with the word "LUNBUS" may be used only by drivers of scheduled buses or trams.</p> <p>Standard international operation</p> <p>When an illuminated picture of a bicycle is shown, this signal applied to bicycles and mopeds on a cycle/moped track and drivers of invalid carriages.</p> <p>Prohibited lanes are indicated with a red light in the</p>
Other common rules	<p>Hand-held phone illegal, able to use hands-free (open licence)</p> <p>BAC – legal limit .05% (open licence)</p>	<p>Drivers must not use their mobile phone without a hand-free set.</p> <p>BAC: legal limit .05 standard drivers (private vehicle); .02 novice drivers (less than 5 years' driving experience).</p> <p>Motorways may only be used for drivers, whose vehicles are capable of being driven at speeds greater than 50km/h.</p>

Table A.10. Australia and Denmark

Country	Queensland, Australia	Denmark
Web address	https://www.qld.gov.au/transport/safety/rules/road	http://ec.europa.eu/transport/road_safety/going_abroad/denmark/index_en.htm http://www.thecopenhagenbook.dk/practical/driving-in-denmark-general-rules/
Direction of traffic	Left-hand side driving	Right-hand side driving
Changing lanes and merging	<p><i>Changing lanes:</i></p> <ul style="list-style-type: none"> • Must give way to any vehicle in the lane you are moving into. • Must indicate for long enough to give warning to others. <p><i>Merging:</i></p> <ul style="list-style-type: none"> • On roads where there are lanes marked on the road... • Must give way to traffic already in lane you are moving into. <p><i>On road where there are no lanes marked on the road:</i></p> <ul style="list-style-type: none"> • Must give way to any vehicle that is ahead of you 	
Giving way	<p><i>You are required to give way when:</i></p> <ul style="list-style-type: none"> • The rules say that you must • Give way sign • Stop or give way lines on the road • You're turning right across the path of oncoming vehicle at an intersection • You're turning left or right at a T-intersection • You're moving onto a road from a driveway or land next to a road • You're moving off from being stopped on the side of the road • You're doing a U-turn • You're turning left at an intersection with a 'left turn on red after stopping' sign 	<p>Give way to traffic from the right.</p> <p>A red and white triangular give way sign or a line of white triangles across the road signify that you must give way to traffic on the road you enter.</p> <p>Give way to buses that signal to pull out from bus stop.</p> <p>Cyclists always have right of way on roads.</p>

Country	Queensland, Australia	Denmark
	<p><i>2 stop or give way signs:</i></p> <ul style="list-style-type: none"> • Both vehicles must give way to other vehicles before they must • give way to each other <p><i>1 stop or give way sign:</i></p> <ul style="list-style-type: none"> • Vehicle with give way sign must give way to vehicle with stop sign <p><i>Giving way at uncontrolled crossroads (no traffic lights, lines, or signs):</i></p> <ul style="list-style-type: none"> • Must give way to vehicles on your right <p><i>Giving way at a T-intersection:</i></p> <ul style="list-style-type: none"> • Must give way to all vehicles; except those doing a U-turn - travelling on road continuing through intersection <p><i>Giving way when turning right:</i></p> <ul style="list-style-type: none"> • When turning right at uncontrolled crossroad, you must give way to vehicles coming from opposite direction that are: driving straight ahead through the intersection, turning left at intersection. <p><i>Giving way when using slip lanes:</i></p> <ul style="list-style-type: none"> • Must give way to all traffic already on the road you're entering (expect vehicles doing a U-turn) <p><i>Giving way to buses:</i></p> <ul style="list-style-type: none"> • Build-up areas and speed limit is 70km/h or less – must give way to bus that displays a “give way to buses” sign, and signalling to enter traffic from: a bus zone, bus stop, the left side of the road. <p><i>Giving way when entering or leaving a road:</i></p> <ul style="list-style-type: none"> • Must give way to all other vehicles and signal for at least 5 seconds when you drive on the road from a parked position on the side of the road or in a median strip. <p><i>Giving way to pedestrians and cyclists:</i></p>	

Country	Queensland, Australia	Denmark
	<ul style="list-style-type: none"> From private property or driveway - must give way to pedestrians or cyclists on the footpath or road and vehicles on the road you are entering. <p><i>Giving way to pedestrians and cyclists:</i></p> <ul style="list-style-type: none"> Must give way to pedestrians crossing a road you're turning into or entering. 	
<p>Keeping left/right, Overtaking</p>	<p>Single-lane roads - stay as close to the left side</p> <p>Multi-lane roads - posted speed limit 90km/h or more, or if the road has a "keep left unless overtaking" sign, you must not drive in the right-hand lane unless...</p> <ul style="list-style-type: none"> Overtaking Turning right Making a U-turn Avoiding an obstruction Driving in congested traffic Using a special purpose lane that you are allowed to be in. <p>Drivers are allowed to overtake on the left on all multi-lane roads</p> <p>You can only overtake another vehicle if you have a clear view of any approaching traffic and you can do so safely (and road markings and signs allow you to overtake).</p> <p>It is never legal to exceed the speed limit to overtake another vehicle</p> <p>if you're approaching a pedestrian or children's crossing, you cannot overtake or pass a vehicle that is travelling in the same direction and has stopped, or is stopped at the crossing.</p>	<p>Overtake on the left.</p>

Country	Queensland, Australia	Denmark
Road markings	<p>Must not cross a double continuous centre line expect to safely to pass a cyclist</p> <p>Can overtake across a broken single centre line</p> <p>You can drive on a painted traffic island that is surrounded by a single continuous line for up to 50m to...</p> <ul style="list-style-type: none"> • Enter or leave the road • Enter a turning lane that begins immediately after the island. 	
Roundabouts	<p>When approaching a roundabout you must give way to all vehicles already on the roundabout.</p> <p>Turn left – must be in left lane</p> <p>Turn right – must be in right lane</p> <p>Straight – enter roundabout in either lane.</p>	<p>Give way to pedestrians crossing the lane you are entering and give way to cyclists and mopeds that move on ahead when you are to turn at roundabouts.</p>
Safe following distance	<p>Ideal condition - 2 seconds behind the vehicle in front</p> <p>Add 1 extra second for each 3m trailer length when towing a trailer or caravan</p>	
Special purpose lanes	<p>Bus lane: if you are operating a bicycle, bus, taxi, limousine, or emergency vehicle.</p> <p>Must give way to bicycles when moving into a bicycle lane. Cyclists can choose whether to use a bicycle lane – it isn't mandatory.</p> <p>T2 lanes – carrying 2 or more people</p> <p>T3 lanes – carrying 3 or more people</p> <p>If you travel in a special purpose lane illegally, you may be fined.</p>	<p>There are lanes reserved for various types of vehicles, as specified by road signs. Drivers must use the lane specified for the vehicle they are driving. Small mopeds must be driven on cycle paths unless road signs indicate otherwise. Slow lanes are for use only by vehicles driving at speeds lower than that indicated on the road sign.</p>
Traffic lights, U-turns, overhead lane controls	<p>Standard international operation</p> <p>You can only make a U-turn at traffic lights when there is a U-turn permitted sign</p> <p>Overhead controls:</p>	<p>Standard international operation</p>

Country	Queensland, Australia	Denmark
Other common rules	<p>Must not travel in a lane marked with an illuminated red diagonal cross or pass a traffic sign above a lane displaying a red diagonal cross.</p> <p>Hand-held phone illegal, able to use hands-free (open licence) BAC – legal limit .05% (open licence)</p>	<p>Not permitted to drive a vehicle while using a hand-held mobile phone.</p> <p>BAC – legal limit .05% (standard driver)</p>

Table A.11. Australia and Italy

Country	Queensland, Australia	Italy
Web address	https://www.qld.gov.au/transport/safety/rules/road	http://ec.europa.eu/transport/road_safety/going_a_broad/italy/index_en.htm (limited information provided from this site). https://www.rac.co.uk/drive/travel/country/italy/
Direction of traffic	Left-hand side driving	Right-hand side driving
Changing lanes and merging	<p><i>Changing lanes:</i></p> <ul style="list-style-type: none"> • Must give way to any vehicle in the lane you are moving into. • Must indicate for long enough to give warning to others. <p><i>Merging:</i></p> <ul style="list-style-type: none"> • On roads where there are lanes marked on the road... • Must give way to traffic already in lane you are moving into. <p><i>On road where there are no lanes marked on the road:</i></p> <ul style="list-style-type: none"> • Must give way to any vehicle that is ahead of you 	
Giving way	<p><i>You are required to give way when:</i></p> <ul style="list-style-type: none"> • The rules say that you must • Give way sign • Stop or give way lines on the road • You're turning right across the path of oncoming vehicle at an intersection • You're turning left or right at a T-intersection • You're moving onto a road from a driveway or land next to a road • You're moving off from being stopped on the side of the road • You're doing a U-turn • You're turning left at an intersection with a 'left turn on red after stopping' sign 	

Country	Queensland, Australia	Italy
	<p><i>2 stop or give way signs:</i></p> <ul style="list-style-type: none"> • Both vehicles must give way to other vehicles before they must give way to each other <p><i>1 stop or give way sign:</i></p> <ul style="list-style-type: none"> • Vehicle with give way sign must give way to vehicle with stop sign <p><i>Giving way at uncontrolled crossroads (no traffic lights, lines, or signs):</i></p> <ul style="list-style-type: none"> • Must give way to vehicles on your right <p><i>Giving way at a T-intersection:</i></p> <ul style="list-style-type: none"> • Must give way to all vehicles; except those doing a U-turn - travelling on road continuing through intersection <p><i>Giving way when turning right:</i></p> <ul style="list-style-type: none"> • When turning right at uncontrolled crossroad, you must give way to vehicles coming from opposite direction that are: driving straight ahead through the intersection, turning left at intersection. <p><i>Giving way when using slip lanes:</i></p> <ul style="list-style-type: none"> • Must give way to all traffic already on the road you're entering (expect vehicles doing a U-turn) <p><i>Giving way to buses:</i></p> <ul style="list-style-type: none"> • Build-up areas and speed limit is 70km/h or less – must give way to bus that displays a “give way to buses” sign, and signalling to enter traffic from: a bus zone, bus stop, the left side of the road. <p><i>Giving way when entering or leaving a road:</i></p> <ul style="list-style-type: none"> • Must give way to all other vehicles and signal for at least 5 seconds when you drive on the road from a parked position on the side of the road or in a median strip. <p><i>Giving way to pedestrians and cyclists:</i></p>	

Country	Queensland, Australia	Italy
	<ul style="list-style-type: none"> From private property or driveway - must give way to pedestrians or cyclists on the footpath or road and vehicles on the road you are entering. <p><i>Giving way to pedestrians and cyclists:</i></p> <ul style="list-style-type: none"> Must give way to pedestrians crossing a road you're turning into or entering. 	
<p>Keeping left/right, Overtaking</p>	<p>Single-lane roads - stay as close to the left side</p> <p>Multi-lane roads - posted speed limit 90km/h or more, or if the road has a "keep left unless overtaking" sign, you must not drive in the right-hand lane unless...</p> <ul style="list-style-type: none"> Overtaking Turning right Making a U-turn Avoiding an obstruction Driving in congested traffic Using a special purpose lane that you are allowed to be in. <p>Drivers are allowed to overtake on the left on all multi-lane roads</p> <p>You can only overtake another vehicle if you have a clear view of any approaching traffic and you can do so safely (and road markings and signs allow you to overtake).</p> <p>It is never legal to exceed the speed limit to overtake another vehicle</p> <p>If you're approaching a pedestrian or children's crossing, you cannot overtake or pass a vehicle that is travelling in the same direction and has stopped, or is stopped at the crossing.</p>	<p>The vehicle to be overtaken must keep as far to the right as possible and not accelerate.</p> <p>On roads with three traffic lanes, overtaking is allowed only when a vehicle travelling in the opposite direction is not already in the middle lane.</p> <p>Overtaking is forbidden:</p> <ul style="list-style-type: none"> At level crossings At bends On the brow of a hill At intersections Limited visibility.

Country	Queensland, Australia	Italy
Road markings	<p>Must not cross a double continuous centre line expect to safely to pass a cyclist</p> <p>Can overtake across a broken single centre line</p> <p>You can drive on a painted traffic island that is surrounded by a single continuous line for up to 50m to...</p> <ul style="list-style-type: none"> • Enter or leave the road • Enter a turning lane that begins immediately after the island. 	
Roundabouts	<p>When approaching a roundabout you must give way to all vehicles already on the roundabout.</p> <p>Turn left – must be in left lane</p> <p>Turn right – must be in right lane</p> <p>Straight – enter roundabout in either lane.</p>	Give way to the left.
Safe following distance	<p>Ideal condition - 2 seconds behind the vehicle in front</p> <p>Add 1 extra second for each 3m trailer length when towing a trailer or caravan</p>	
Special purpose lanes	<p>Bus lane: if you are operating a bicycle, bus, taxi, limousine, or emergency vehicle.</p> <p>Must give way to bicycles when moving into a bicycle lane. Cyclists can choose whether to use a bicycle lane – it isn't mandatory.</p> <p>T2 lanes – carrying 2 or more people</p> <p>T3 lanes – carrying 3 or more people</p> <p>If you travel in a special purpose lane illegally, you may be fined.</p>	
Traffic lights, U-turns, overhead lane controls	<p>Standard international operation</p> <p>You can only make a U-turn at traffic lights when there is a U-turn permitted sign</p> <p>Overhead controls:</p>	Standard international operation

Country	Queensland, Australia	Italy
Other common rules	Must not travel in a lane marked with an illuminated red diagonal cross or pass a traffic sign above a lane displaying a red diagonal cross. Hand-held phone illegal, able to use hands-free (open licence) BAC – legal limit .05% (open licence)	Hand-held phone illegal, able to use hands-free BAC – legal limit .05% (standard driver)

Table A.12. Australia and Canada

Country	Queensland, Australia	Canada
Web address	https://www.qld.gov.au/transport/safety/rules/road	Road rules differ State by State. The example provided here is from Ontario https://www.ontario.ca/document/official-mto-drivers-handbook http://www.tac-atc.ca/sites/default/files/site/doc/Bookstore/primer_-_january_2017.pdf
Direction of traffic	Left-hand side driving	Right-hand side driving
Changing lanes and merging	<p><i>Changing lanes:</i></p> <ul style="list-style-type: none"> • Must give way to any vehicle in the lane you are moving into. • Must indicate for long enough to give warning to others. <p><i>Merging:</i></p> <ul style="list-style-type: none"> • On roads where there are lanes marked on the road.... • Must give way to traffic already in lane you are moving into. <p><i>On road where there are no lanes marked on the road:</i></p> <ul style="list-style-type: none"> • Must give way to any vehicle that is ahead of you 	<p>When approaching the end of a passing lane, drivers in the right lane must merge safely with traffic to the left. Drivers in the left lane must cooperate to let drivers from the right lane merge.</p> <p>Merging is a shared responsibility (neither the merging vehicle nor the vehicles already on the highway have the right of way).</p>
Giving way	<p><i>You are required to give way when:</i></p> <ul style="list-style-type: none"> • The rules say that you must • Give way sign • Stop or give way lines on the road • You're turning right across the path of oncoming vehicle at an intersection • You're turning left or right at a T-intersection • You're moving onto a road from a driveway or land next to a road • You're moving off from being stopped on the side of the road 	<p>Yielding the right-of-way:</p> <ul style="list-style-type: none"> • At an intersection without signs or lights, you must yield the right of way to a vehicle approaching the intersection before you, and if you arrive at the same time, the vehicle approaching from the right has the right-of-way. • At an intersection with stop signs at all corners, you must yield the right of way to the first vehicle to come to a complete stop. If two vehicles stop at the same time, the vehicle on the left must yield to the vehicle on the right.

Country	Queensland, Australia	Canada
	<ul style="list-style-type: none"> • You're doing a U-turn • You're turning left at an intersection with a 'left turn on red after stopping' sign <p><i>2 stop or give way signs:</i></p> <ul style="list-style-type: none"> • Both vehicles must give way to other vehicles before they must give way to each other <p><i>1 stop or give way sign:</i></p> <ul style="list-style-type: none"> • Vehicle with give way sign must give way to vehicle with stop sign <p><i>Giving way at uncontrolled crossroads (no traffic lights, lines, or signs):</i></p> <ul style="list-style-type: none"> • Must give way to vehicles on your right <p><i>Giving way at a T-intersection:</i></p> <ul style="list-style-type: none"> • Must give way to all vehicles; except those doing a U-turn - travelling on road continuing through intersection <p><i>Giving way when turning right:</i></p> <ul style="list-style-type: none"> • When turning right at uncontrolled crossroad you must give way to vehicles coming from opposite direction that are: driving straight ahead through the intersection, turning left at intersection. <p><i>Giving way when using slip lanes:</i></p> <ul style="list-style-type: none"> • Must give way to all traffic already on the road you're entering (except vehicles doing a U-turn) <p><i>Giving way to buses:</i></p> <ul style="list-style-type: none"> • Build-up areas and speed limit is 70km/h or less – must give way to bus that displays a “give way to buses” sign, and signalling to enter traffic from: a bus zone, bus stop, the left side of the road. <p><i>Giving way when entering or leaving a road:</i></p> <ul style="list-style-type: none"> • Must give way to all other vehicles and signal for at least 5 seconds when you drive on the road from a parked position on the side of the road or in a median strip. 	<ul style="list-style-type: none"> • At any intersection where you want to turn left of right, you must yield the right of way. When entering a road from a private road or driveway, you must yield to vehicles on the road and pedestrians on the sidewalk (footpath). <p>You must stop whenever you approach a stopped school bus with its upper alternating red lights flashing, regardless of whether you are behind the bus or approaching it from the front. When approaching the bus from the front, stop at a safe distance for children to get off the bus and cross the road in front of you. If you are coming from behind the bus, stop at least 20 metres away. Do not go until the bus moves or the lights have stopped flashing.</p>

Country	Queensland, Australia	Canada
	<p><i>Giving way to pedestrians and cyclists:</i></p> <ul style="list-style-type: none"> From private property or driveway - must give way to pedestrians or cyclists on the footpath or road and vehicles on the road you are entering. <p><i>Giving way to pedestrians and cyclists:</i></p> <ul style="list-style-type: none"> Must give way to pedestrians crossing a road you're turning into or entering. 	
<p>Keeping left/ right, Overtaking</p>	<p>Single-lane roads - stay as close to the left side</p> <p>Multi-lane roads - posted speed limit 90km/h or more, or if the road has a "keep left unless overtaking" sign, you must not drive in the right-hand lane unless...</p> <ul style="list-style-type: none"> Overtaking Turning right Making a U-turn Avoiding an obstruction Driving in congested traffic Using a special purpose lane that you are allowed to be in. <p>Drivers are allowed to overtake on the left on all multi-lane roads</p> <p>You can only overtake another vehicle if you have a clear view of any approaching traffic and you can do so safely (and road markings and signs allow you to overtake).</p> <p>It is never legal to exceed the speed limit to overtake another vehicle</p> <p>If you're approaching a pedestrian or children's crossing, you cannot overtake or pass a vehicle that is travelling in the same direction and has stopped, or is stopped at the crossing.</p>	<p>Keep right; overtake on left.</p>

Country	Queensland, Australia	Canada
Road markings	<p>Must not cross a double continuous centre line expect to safely to pass a cyclist</p> <p>Can overtake across a broken single centre line</p> <p>You can drive on a painted traffic island that is surrounded by a single continuous line for up to 50m to...</p> <ul style="list-style-type: none"> • Enter or leave the road • Enter a turning lane that begins immediately after the island. 	<p>Yellow lines separate traffic travelling in opposite direction.</p> <p>White lines separate traffic travelling in the same direction.</p> <p>A solid line at the left of your lane means that it is unsafe to pass.</p> <p>A broken line at the left of your lane means you may pass if the way is clear.</p>
Roundabouts	<p>When approaching a roundabout you must give way to all vehicles already on the roundabout.</p> <p>Turn left – must be in left lane</p> <p>Turn right – must be in right lane</p> <p>Straight – enter roundabout in either lane.</p>	<p>As you approach the roundabout, look for signage to choose your exit. Choose which lane to use as you would for any other intersection. Use the left lane to turn left or to go straight. Use the right lane to turn right or to go straight. Do not enter a roundabout from the right lane if you want to turn left. Cyclists generally keep to the centre of the appropriate lane, or dismount and use the roundabout as a pedestrian would.</p> <p>Once you are in the roundabout, do not stop except to avoid a collision; you have the right-of-way over entering traffic. Do not change lanes while in the roundabout. If in the inside lane and you miss your exit, you must continue around until you meet your exit again.</p> <p>First roundabouts in Canada did not emerge until the 1990's; however, this form of intersection control is becoming increasingly more common.</p>
Safe following distance	<p>Ideal condition - 2 seconds behind the vehicle in front</p> <p>Add 1 extra second for each 3m trailer length when towing a trailer or caravan</p>	

Country	Queensland, Australia	Canada
Special purpose lanes	<p>Bus lane: if you are operating a bicycle, bus, taxi, limousine, or emergency vehicle.</p> <p>Must give way to bicycles when moving into a bicycle lane. Cyclists can choose whether to use a bicycle lane – it isn't mandatory.</p> <p>T2 lanes – carrying 2 or more people</p> <p>T3 lanes – carrying 3 or more people</p> <p>If you travel in a special purpose lane illegally, you may be fined.</p>	<p>High-Occupancy Vehicle (HOV) lane - reserved for vehicles carrying at least two people.</p>
Traffic lights, U-turns, overhead lane controls	<p>Standard international operation</p> <p>You can only make a U-turn at traffic lights when there is a U-turn permitted sign</p> <p>Overhead controls:</p> <p>Must not travel in a lane marked with an illuminated red diagonal cross or pass a traffic sign above a lane displaying a red diagonal cross.</p>	<p>Standard international operation</p> <p>Before you make a U-turn, check to make sure there is no sign saying not to.</p> <p>Unless a sign tells you not to, you may make a right turn facing a red light as long as you first come to a complete stop and wait until the way is clear.</p>
Other common rules	<p>Hand-held phone illegal, able to use hands-free (open licence)</p> <p>BAC – legal limit .05% (open licence)</p>	<p>All drivers who are 21 and under, regardless of licence class, must have a BAC level of zero when operating a motor vehicle. BAC – legal limit .05% (drivers 22 years and older).</p>

Table A.13. Australia and China

Country	Queensland, Australia	China
Web address	https://www.qld.gov.au/transport/safety/rules/road	http://www.npc.gov.cn/npc/xinwen/2011-04/23/content_1653570.htm
Direction of traffic	Left-hand side driving	Right-hand side driving
Changing lanes and merging	<p><i>Changing lanes:</i></p> <ul style="list-style-type: none"> • Must give way to any vehicle in the lane you are moving into. • Must indicate for long enough to give warning to others. <p><i>Merging:</i></p> <ul style="list-style-type: none"> • On roads where there are lanes marked on the road.... • Must give way to traffic already in lane you are moving into. <p><i>On road where there are no lanes marked on the road:</i></p> <ul style="list-style-type: none"> • Must give way to any vehicle that is ahead of you 	
Giving way	<p><i>You are required to give way when:</i></p> <ul style="list-style-type: none"> • The rules say that you must • Give way sign • Stop or give way lines on the road • You're turning right across the path of oncoming vehicle at an intersection • You're turning left or right at a T-intersection • You're moving onto a road from a driveway or land next to a road • You're moving off from being stopped on the side of the road • You're doing a U-turn • You're turning left at an intersection with a 'left turn on red after stopping' sign <p><i>2 stop or give way signs:</i></p> <ul style="list-style-type: none"> • Both vehicles must give way to other vehicles before they must 	<p>Vehicles must give way to pedestrians at marked pedestrian crossings.</p> <p>When passing through intersections with no traffic lights, signs or markings, vehicles need to give way to pedestrians.</p> <p>Must give way to priority service vehicles (i.e., police, ambulance, fire engines).</p> <p>Pedestrians and non-motor vehicles to use the footpath and non-motor vehicle lanes.</p> <p>Pedestrians have right of way.</p>

Country	Queensland, Australia	China
	<ul style="list-style-type: none"> • give way to each other <p><i>1 stop or give way sign:</i></p> <ul style="list-style-type: none"> • Vehicle with give way sign must give way to vehicle with stop sign <p><i>Giving way at uncontrolled crossroads (no traffic lights, lines, or signs):</i></p> <ul style="list-style-type: none"> • Must give way to vehicles on your right <p><i>Giving way at a T-intersection:</i></p> <ul style="list-style-type: none"> • Must give way to all vehicles; except those doing a U-turn - travelling on road continuing through intersection <p><i>Giving way when turning right:</i></p> <ul style="list-style-type: none"> • When turning right at uncontrolled crossroad, you must give way to vehicles coming from opposite direction that are: driving straight ahead through the intersection, turning left at intersection. <p><i>Giving way when using slip lanes:</i></p> <ul style="list-style-type: none"> • Must give way to all traffic already on the road you're entering (expect vehicles doing a U-turn) <p><i>Giving way to buses:</i></p> <ul style="list-style-type: none"> • Build-up areas and speed limit is 70km/h or less – must give way to bus that displays a “give way to buses” sign, and signalling to enter traffic from: a bus zone, bus stop, the left side of the road. <p><i>Giving way when entering or leaving a road:</i></p> <ul style="list-style-type: none"> • Must give way to all other vehicles and signal for at least 5 seconds when you drive on the road from a parked position on the side of the road or in a median strip. <p><i>Giving way to pedestrians and cyclists:</i></p> <ul style="list-style-type: none"> • From private property or driveway - must give way to pedestrians or cyclists on the footpath or road and vehicles on the road you are entering. <p><i>Giving way to pedestrians and cyclists:</i></p>	

Country	Queensland, Australia	China
Keeping left/ right, Overtaking	<ul style="list-style-type: none"> • Must give way to pedestrians crossing a road you're turning into or entering. <p>Single-lane roads - stay as close to the left side</p> <p>Multi-lane roads - posted speed limit 90km/h or more, or if the road has a "keep left unless overtaking" sign, you must not drive in the right-hand lane unless...</p> <ul style="list-style-type: none"> • Overtaking • Turning right • Making a U-turn • Avoiding an obstruction • Driving in congested traffic • Using a special purpose lane that you are allowed to be in. <p>Drivers are allowed to overtake on the left on all multi-lane roads</p> <p>You can only overtake another vehicle if you have a clear view of any approaching traffic and you can do so safely (and road markings and signs allow you to overtake).</p> <p>It is never legal to exceed the speed limit to overtake another vehicle</p> <p>If you're approaching a pedestrian or children's crossing, you cannot overtake or pass a vehicle that is travelling in the same direction and has stopped, or is stopped at the crossing.</p>	<p>Keep right.</p>
Road markings	<p>Must not cross a double continuous centre line expect to safely to pass a cyclist</p> <p>Can overtake across a broken single centre line</p>	

Country	Queensland, Australia	China
Roundabouts	<p>You can drive on a painted traffic island that is surrounded by a single continuous line for up to 50m to...</p> <ul style="list-style-type: none"> • Enter or leave the road • Enter a turning lane that begins immediately after the island. 	
Safe following distance	<p>When approaching a roundabout you must give way to all vehicles already on the roundabout.</p> <p>Turn left – must be in left lane Turn right – must be in right lane Straight – enter roundabout in either lane.</p> <p>Ideal condition - 2 seconds behind the vehicle in front Add 1 extra second for each 3m trailer length when towing a trailer or caravan</p>	<p>Must maintain a safe following distance. Must not overtake police, fire engines, ambulance or tow trucks when flash lights are switched on / in emergency situations.</p> <p>In the absence of overtaking signs/signals, vehicles must not overtake when passing railway crossing, intersections, narrow bridges, curved roads, steep slopes, tunnels, pedestrian crossings, road sections with large traffic flow in urban areas.</p>
Special purpose lanes	<p>Bus lane: if you are operating a bicycle, bus, taxi, limousine, or emergency vehicle.</p> <p>Must give way to bicycles when moving into a bicycle lane. Cyclists can choose whether to use a bicycle lane – it isn't mandatory.</p> <p>T2 lanes – carrying 2 or more people T3 lanes – carrying 3 or more people</p> <p>If you travel in a special purpose lane illegally, you may be fined.</p>	<p>Only authorised vehicles can drive within special purpose lanes</p>
Traffic lights, U-turns, overhead lane controls	<p>Standard international operation</p> <p>You can only make a U-turn at traffic lights when there is a U-turn permitted sign</p>	<p>Standard international operation</p>

Country	Queensland, Australia	China
Other common rules	<p>Overhead controls: Must not travel in a lane marked with an illuminated red diagonal cross or pass a traffic sign above a lane displaying a red diagonal cross.</p> <p>Hand-held phone illegal, able to use hands-free (open licence) BAC – legal limit .05% (open licence)</p>	

Table A.14. Australia and Taiwan

Country	Queensland, Australia	Taiwan
Web address	https://www.qld.gov.au/transport/safety/rules/road	http://law.moj.gov.tw/eng/LawClass/LawAll.aspx?PCode=K0040012 https://www.thb.gov.tw/sites/en/
Direction of traffic	Left-hand side driving	Right-hand side driving
Changing lanes and merging	<p><i>Changing lanes:</i></p> <ul style="list-style-type: none"> • Must give way to any vehicle in the lane you are moving into. • Must indicate for long enough to give warning to others. <p><i>Merging:</i></p> <ul style="list-style-type: none"> • On roads where there are lanes marked on the road.... • Must give way to traffic already in lane you are moving into. <p><i>On road where there are no lanes marked on the road:</i></p> <ul style="list-style-type: none"> • Must give way to any vehicle that is ahead of you 	<p>When making a turn or changing lanes, drivers can either use their indicator or signal with their arm with palm facing slightly to the direction they intend to turn into.</p>
Giving way	<p><i>You are required to give way when:</i></p> <ul style="list-style-type: none"> • The rules say that you must • Give way sign • Stop or give way lines on the road • You're turning right across the path of oncoming vehicle at an intersection • You're turning left or right at a T-intersection • You're moving onto a road from a driveway or land next to a road • You're moving off from being stopped on the side of the road • You're doing a U-turn • You're turning left at an intersection with a 'left turn on red after stopping' sign <p><i>2 stop or give way signs:</i></p>	<p>Must give way at pedestrian crossings.</p> <p>On narrow sloping roads, vehicles travelling downhill must yield to vehicles travelling uphill. If the vehicle travelling uphill is at the foot of the hill, and the vehicle travelling down hill is already halfway down, then the vehicle travelling uphill must yield to the vehicle travelling downhill. On mountainous roads, vehicles travelling in the lane close to the mountain must yield to vehicles in all other lanes.</p>

Country	Queensland, Australia	Taiwan
	<ul style="list-style-type: none"> Both vehicles must give way to other vehicles before they must give way to each other <p><i>1 stop or give way sign:</i></p> <ul style="list-style-type: none"> Vehicle with give way sign must give way to vehicle with stop sign <p><i>Giving way at uncontrolled crossroads (no traffic lights, lines, or signs):</i></p> <ul style="list-style-type: none"> Must give way to vehicles on your right <p><i>Giving way at a T-intersection:</i></p> <ul style="list-style-type: none"> Must give way to all vehicles; except those doing a U-turn - travelling on road continuing through intersection <p><i>Giving way when turning right:</i></p> <ul style="list-style-type: none"> When turning right at uncontrolled crossroad, you must give way to vehicles coming from opposite direction that are: driving straight ahead through the intersection, turning left at intersection. <p><i>Giving way when using slip lanes:</i></p> <ul style="list-style-type: none"> Must give way to all traffic already on the road you're entering (expect vehicles doing a U-turn) <p><i>Giving way to buses:</i></p> <ul style="list-style-type: none"> Build-up areas and speed limit is 70km/h or less – must give way to bus that displays a “give way to buses” sign, and signalling to enter traffic from: a bus zone, bus stop, the left side of the road. <p><i>Giving way when entering or leaving a road:</i></p> <ul style="list-style-type: none"> Must give way to all other vehicles and signal for at least 5 seconds when you drive on the road from a parked position on the side of the road or in a median strip. <p><i>Giving way to pedestrians and cyclists:</i></p> <ul style="list-style-type: none"> From private property or driveway - must give way to pedestrians or cyclists on the footpath or road and vehicles on the road you are entering. 	

Country	Queensland, Australia	Taiwan
	<p><i>Giving way to pedestrians and cyclists:</i></p> <ul style="list-style-type: none"> <li>• Must give way to pedestrians crossing a road you're turning into or entering. <p>Keeping left/right, Overtaking</p> <p>Single-lane roads - stay as close to the left side</p> <p>Multi-lane roads - posted speed limit 90km/h or more, or if the road has a "keep left unless overtaking" sign, you must not drive in the right-hand lane unless...</p> <ul style="list-style-type: none"> <li>• Overtaking <li>• Turning right <li>• Making a U-turn <li>• Avoiding an obstruction <li>• Driving in congested traffic <li>• Using a special purpose lane that you are allowed to be in. <p>Drivers are allowed to overtake on the left on all multi-lane roads</p> <p>You can only overtake another vehicle if you have a clear view of any approaching traffic and you can do so safely (and road markings and signs allow you to overtake).</p> <p>It is never legal to exceed the speed limit to overtake another vehicle</p> <p>If you're approaching a pedestrian or children's crossing, you cannot overtake or pass a vehicle that is travelling in the same direction and has stopped, or is stopped at the crossing.</p>	<p>Keep right, with the exception of one-way roads. If vehicles must drive on the left side of the road in special circumstances, they must reduce speed and watch out for on-coming vehicles and pedestrians.</p> <p>Vehicles travelling on a two-way, two-lane road are allowed to overtake vehicles in the on-coming traffic lane if the lanes are separated by a broken yellow line (same as Australia).</p>
Road markings	<p>Must not cross a double continuous centre line expect to safely to pass a cyclist</p> <p>Can overtake across a broken single centre line</p>	

Country	Queensland, Australia	Taiwan
	<p>You can drive on a painted traffic island that is surrounded by a single continuous line for up to 50m to...</p> <ul style="list-style-type: none"> • Enter or leave the road • Enter a turning lane that begins immediately after the island. 	
Roundabouts	<p>When approaching a roundabout you must give way to all vehicles already on the roundabout.</p> <p>Turn left – must be in left lane Turn right – must be in right lane Straight – enter roundabout in either lane.</p>	<p>In circular intersections with multiple lanes, drivers must yield to vehicles in the inner lanes.</p>
Safe following distance	<p>Ideal condition - 2 seconds behind the vehicle in front Add 1 extra second for each 3m trailer length when towing a trailer or caravan</p>	<p>When driving in the same lane, the vehicle in front and the vehicle in the back are required to maintain a safe driving distance that allows them to brake and stop the vehicle, unless the vehicle in the back is in the process of overtaking the one in front.</p> <p>Need to use indicator or arm signal to alert any vehicle behind that they intend to slow down or stop temporarily (even in the absence of an emergency stop).</p>
Special purpose lanes	<p>Bus lane: if you are operating a bicycle, bus, taxi, limousine, or emergency vehicle. Must give way to bicycles when moving into a bicycle lane. Cyclists can choose whether to use a bicycle lane – it isn't mandatory. T2 lanes – carrying 2 or more people T3 lanes – carrying 3 or more people If you travel in a special purpose lane illegally, you may be fined.</p>	<p>On freeways, a deceleration lane is the farthest right lane that allows drivers to decelerate before exiting a road.</p>

Country	Queensland, Australia	Taiwan
Traffic lights, U-turns, overhead lane controls	<p>Standard international operation</p> <p>You can only make a U-turn at traffic lights when there is a U-turn permitted sign</p> <p>Overhead controls:</p> <p>Must not travel in a lane marked with an illuminated red diagonal cross or pass a traffic sign above a lane displaying a red diagonal cross.</p>	<p>Standard international operation</p> <p>Drivers may only make a U-turn on roads with a U-turn sign. May not make a U-turn on roads that are winding or narrow, or that have a steep slope, narrow bridge, tunnel, or railroad crossing. May not make a U-turn on roads where left turns are prohibited.</p>
Other common rules	<p>Hand-held phone illegal, able to use hands-free (open licence)</p> <p>BAC – legal limit .05% (open licence)</p>	

Table A.15. Australia and Singapore

Country	Queensland, Australia	Singapore
Web address	https://www.qld.gov.au/transport/safety/rules/road	https://www.police.gov.sg/resources/traffic-matters/online-learning-portal#content https://www.police.gov.sg/~media/spt/files/tp/online%20learning%20portal/final%20english%20updated%20cover%20v2%2010th%20edition%20btt%20(270218).pdf
Direction of traffic	Left-hand side driving	Left-hand side driving
Changing lanes and merging	<p><i>Changing lanes:</i></p> <ul style="list-style-type: none"> • Must give way to any vehicle in the lane you are moving into. • Must indicate for long enough to give warning to others. <p><i>Merging:</i></p> <ul style="list-style-type: none"> • On roads where there are lanes marked on the road.... • Must give way to traffic already in lane you are moving into. <p><i>On road where there are no lanes marked on the road:</i></p> <ul style="list-style-type: none"> • Must give way to any vehicle that is ahead of you 	When changing lanes, give sufficient warning of your intention. Always signal in advance.
Giving way	<p><i>You are required to give way when:</i></p> <ul style="list-style-type: none"> • The rules say that you must • Give way sign • Stop or give way lines on the road • You're turning right across the path of oncoming vehicle at an intersection • You're turning left or right at a T-intersection • You're moving onto a road from a driveway or land next to a road • You're moving off from being stopped on the side of the road • You're doing a U-turn 	<p>If you are going straight across the junction, you must give way to traffic going straight from the right.</p> <p>If you are turning right, you must give way to traffic going straight from all directions, as well as traffic turning right from the right and traffic turning left from the opposite direction.</p> <p>If you are turning left, you must give way to traffic going straight from the right.</p>

Country	Queensland, Australia	Singapore
	<ul style="list-style-type: none"> You're turning left at an intersection with a 'left turn on red after stopping' sign <p><i>2 stop or give way signs:</i></p> <ul style="list-style-type: none"> Both vehicles must give way to other vehicles before they must give way to each other <p><i>1 stop or give way sign:</i></p> <ul style="list-style-type: none"> Vehicle with give way sign must give way to vehicle with stop sign <p><i>Giving way at uncontrolled crossroads (no traffic lights, lines, or signs):</i></p> <ul style="list-style-type: none"> Must give way to vehicles on your right <p><i>Giving way at a T-intersection:</i></p> <ul style="list-style-type: none"> Must give way to all vehicles; except those doing a U-turn - travelling on road continuing through intersection <p><i>Giving way when turning right:</i></p> <ul style="list-style-type: none"> When turning right at uncontrolled crossroad, you must give way to vehicles coming from opposite direction that are: driving straight ahead through the intersection, turning left at intersection. <p><i>Giving way when using slip lanes:</i></p> <ul style="list-style-type: none"> Must give way to all traffic already on the road you're entering (expect vehicles doing a U-turn) <p><i>Giving way to buses:</i></p> <ul style="list-style-type: none"> Build-up areas and speed limit is 70km/h or less – must give way to bus that displays a “give way to buses” sign, and signalling to enter traffic from: a bus zone, bus stop, the left side of the road. <p><i>Giving way when entering or leaving a road:</i></p> <ul style="list-style-type: none"> Must give way to all other vehicles and signal for at least 5 seconds when you drive on the road from a parked position on the side of the road or in a median strip. <p><i>Giving way to pedestrians and cyclists:</i></p>	

Country	Queensland, Australia	Singapore
Keeping left/ right, Overtaking	<ul style="list-style-type: none"> From private property or driveway - must give way to pedestrians or cyclists on the footpath or road and vehicles on the road you are entering. <p><i>Giving way to pedestrians and cyclists:</i></p> <ul style="list-style-type: none"> Must give way to pedestrians crossing a road you're turning into or entering. <p>Single-lane roads - stay as close to the left side</p> <p>Multi-lane roads - posted speed limit 90km/h or more, or if the road has a "keep left unless overtaking" sign, you must not drive in the right-hand lane unless...</p> <ul style="list-style-type: none"> Overtaking Turning right Making a U-turn Avoiding an obstruction Driving in congested traffic Using a special purpose lane that you are allowed to be in. <p>Drivers are allowed to overtake on the left on all multi-lane roads</p> <p>You can only overtake another vehicle if you have a clear view of any approaching traffic and you can do so safely (and road markings and signs allow you to overtake).</p> <p>It is never legal to exceed the speed limit to overtake another vehicle</p> <p>If you're approaching a pedestrian or children's crossing, you cannot overtake or pass a vehicle that is travelling in the same direction and has stopped, or is stopped at the crossing.</p>	<p>Keep well to the left and as near as practicable to the boundary of the road, except when you intend to overtake or turn right.</p> <p>Always overtake on the right. Can overtake on the left when:</p> <ul style="list-style-type: none"> The driver in front has signalled intention to turn right When you want to turn left at a junction When traffic in moving slowly in queues and vehicles in the lanes on the right are moving more slowly than you are On one-way streets (but not dual carriageways) where vehicles may pass on either side.

Country	Queensland, Australia	Singapore
Road markings	<p>Must not cross a double continuous centre line except to safely to pass a cyclist</p> <p>Can overtake across a broken single centre line</p> <p>You can drive on a painted traffic island that is surrounded by a single continuous line for up to 50m to...</p> <ul style="list-style-type: none"> • Enter or leave the road • Enter a turning lane that begins immediately after the island. 	<p>Parallel broken white lines:</p> <ul style="list-style-type: none"> • Indicate that traffic approaching these lines must give way to traffic on a major road. <p>Single white lines:</p> <ul style="list-style-type: none"> • Indicate that traffic is required to stop and must stop close to and before this line. <p>Parallel dashed/solid white lines (will be phased out):</p> <ul style="list-style-type: none"> • Accompanied by pedestrian signals indicate a designated crossing. Turning vehicles must give way to pedestrians when the 'green man' is lighted. <p>Broken white line:</p> <ul style="list-style-type: none"> • Centre line of a two-way road. Vehicles should keep to the left of this line. <p>Continuous while line:</p> <ul style="list-style-type: none"> • As above; and, parking is not allowed on either side of the road at all times. Motorists can only cross a single continuous or broken white line when they see that the road ahead is clear and it is safe to do so. <p>Unbroken double white lines:</p> <ul style="list-style-type: none"> • You may not overtake at the double white lines unless you keep entirely to the left of such lines. Never cross double white lines - making a u-turn or a right turn is not allowed on a road where such lines are painted. <p>Unbroken yellow line:</p> <ul style="list-style-type: none"> • No parking between 7am and 7pm, except on Sundays and public holidays <p>Unbroken double yellow lines:</p> <ul style="list-style-type: none"> • No parking at all times <p>Single yellow zig-zag line:</p>

Country	Queensland, Australia	Singapore
Roundabouts	<p>When approaching a roundabout you must give way to all vehicles already on the roundabout.</p> <p>Turn left – must be in left lane Turn right – must be in right lane Straight – enter roundabout in either lane.</p>	<ul style="list-style-type: none"> • No parking at all times on that side of the road, except for immediate picking up and letting down of passengers <p>Double yellow zig-zag line:</p> <ul style="list-style-type: none"> • No stopping at all times on that side of the road. <p>Yellow-box junctions:</p> <ul style="list-style-type: none"> • It is an offence for any driver to drive their vehicle into a junction marked with a yellow box and cause obstruction even if the lights are in their favour. <p>Slow down when approaching a roundabout and give way to traffic on your right - traffic coming from your right takes priority over you.</p> <p>Always remember that you have to:</p> <ul style="list-style-type: none"> • Give clear signals showing your intention in good time • Obey the right-hand rule • Not inconvenience other drivers • Use your mirror intelligently to see that you do not obstruct the path of vehicles behind you; and • Show consideration to other road users in the interest of road safety.
Safe following distance	<p>Ideal condition - 2 seconds behind the vehicle in front Add 1 extra second for each 3m trailer length when towing a trailer or caravan</p>	<p>To be able to stop with an appropriate space between your vehicle and the vehicle in front, you must allow at least one car length for every 16km/h of your speed.</p>
Special purpose lanes	<p>Bus lane: if you are operating a bicycle, bus, taxi, limousine, or emergency vehicle. Must give way to bicycles when moving into a bicycle lane. Cyclists can choose whether to use a bicycle lane – it isn't mandatory.</p>	<p>Bus lanes – signed, vehicles other than buses are not allowed to use these lanes during restricted hours. Full-day bus lane hours - denoted by continuous yellow and red line.</p>

Country	Queensland, Australia	Singapore
	<p>T2 lanes – carrying 2 or more people</p> <p>T3 lanes – carrying 3 or more people</p> <p>If you travel in a special purpose lane illegally, you may be fined.</p>	
Traffic lights, U-turns, overhead lane controls	<p>Standard international operation</p> <p>You can only make a U-turn at traffic lights when there is a U-turn permitted sign</p> <p>Overhead controls:</p> <p>Must not travel in a lane marked with an illuminated red diagonal cross or pass a traffic sign above a lane displaying a red diagonal cross.</p>	<p>Standard international operation</p> <p>U-turn signs with vehicle weight restriction (U-turn ahead for vehicles not exceeding the weight limit as stated on sign).</p> <p>Do not make a U-turn at any road intersection, junction or any opening in a road divider except where a U-turn sign is located.</p>
Other common rules	<p>Hand-held phone illegal, able to use hands-free (open licence)</p> <p>BAC – legal limit .05% (open licence)</p>	<p>It is an offence to use a mobile communication device when driving.</p> <p>BAC – legal limit .08%</p>

Table A.16. Australia and France

Country	Queensland, Australia	France
Web address	https://www.qld.gov.au/transport/safety/rules/road	
Direction of traffic	Left-hand side driving	
Changing lanes and merging	<p><i>Changing lanes:</i></p> <ul style="list-style-type: none"> • Must give way to any vehicle in the lane you are moving into. • Must indicate for long enough to give warning to others. <p><i>Merging:</i></p> <ul style="list-style-type: none"> • On roads where there are lanes marked on the road... • Must give way to traffic already in lane you are moving into. <p><i>On road where there are no lanes marked on the road:</i></p> <ul style="list-style-type: none"> • Must give way to any vehicle that is ahead of you 	
Giving way	<p><i>You are required to give way when:</i></p> <ul style="list-style-type: none"> • The rules say that you must • Give way sign • Stop or give way lines on the road • You're turning right across the path of oncoming vehicle at an intersection • You're turning left or right at a T-intersection • You're moving onto a road from a driveway or land next to a road • You're moving off from being stopped on the side of the road • You're doing a U-turn • You're turning left at an intersection with a 'left turn on red after stopping' sign <p><i>2 stop or give way signs:</i></p> <ul style="list-style-type: none"> • Both vehicles must give way to other vehicles before they must • give way to each other 	

Country

Queensland, Australia

France

1 stop or give way sign:

- Vehicle with give way sign must give way to vehicle with stop sign

Giving way at uncontrolled crossroads (no traffic lights, lines, or signs):

- Must give way to vehicles on your right

Giving way at a T-intersection:

- Must give way to all vehicles; except those doing a U-turn - travelling on road continuing through intersection

Giving way when turning right:

- When turning right at uncontrolled crossroad, you must give way to vehicles coming from opposite direction that are: driving straight ahead through the intersection, turning left at intersection.

Giving way when using slip lanes:

- Must give way to all traffic already on the road you're entering (expect vehicles doing a U-turn)

Giving way to buses:

- Build-up areas and speed limit is 70km/h or less – must give way to bus that displays a "give way to buses" sign, and signalling to enter traffic from: a bus zone, bus stop, the left side of the road.

Giving way when entering or leaving a road:

- Must give way to all other vehicles and signal for at least 5 seconds when you drive on the road from a parked position on the side of the road or in a median strip.

Giving way to pedestrians and cyclists:

- From private property or driveway - must give way to pedestrians or cyclists on the footpath or road and vehicles on the road you are entering.

Giving way to pedestrians and cyclists:

Country	Queensland, Australia	France
<p>Keeping left/right, Overtaking</p>	<ul style="list-style-type: none"> • Must give way to pedestrians crossing a road you're turning into or entering. <p>Single-lane roads - stay as close to the left side Multi-lane roads - posted speed limit 90km/h or more, or if the road has a "keep left unless overtaking" sign, you must not drive in the right-hand lane unless...</p> <ul style="list-style-type: none"> • Overtaking • Turning right • Making a U-turn • Avoiding an obstruction • Driving in congested traffic • Using a special purpose lane that you are allowed to be in. <p>Drivers are allowed to overtake on the left on all multi-lane roads</p> <p>You can only overtake another vehicle if you have a clear view of any approaching traffic and you can do so safely (and road markings and signs allow you to overtake).</p> <p>It is never legal to exceed the speed limit to overtake another vehicle</p> <p>If you're approaching a pedestrian or children's crossing, you cannot overtake or pass a vehicle that is travelling in the same direction and has stopped, or is stopped at the crossing.</p>	
<p>Road markings</p>	<p>Must not cross a double continuous centre line except to safely to pass a cyclist</p> <p>Can overtake across a broken single centre line</p>	

Country	Queensland, Australia	France
	<p>You can drive on a painted traffic island that is surrounded by a single continuous line for up to 50m to...</p> <ul style="list-style-type: none"> • Enter or leave the road • Enter a turning lane that begins immediately after the island. 	
Roundabouts	<p>When approaching a roundabout you must give way to all vehicles already on the roundabout.</p>	
Safe following distance	<p>Turn left – must be in left lane Turn right – must be in right lane Straight – enter roundabout in either lane. Ideal condition - 2 seconds behind the vehicle in front Add 1 extra second for each 3m trailer length when towing a trailer or caravan</p>	
Special purpose lanes	<p>Bus lane: if you are operating a bicycle, bus, taxi, limousine, or emergency vehicle. Must give way to bicycles when moving into a bicycle lane. Cyclists can choose whether to use a bicycle lane – it isn't mandatory. T2 lanes – carrying 2 or more people T3 lanes – carrying 3 or more people</p>	
Traffic lights, U-turns, overhead lane controls	<p>If you travel in a special purpose lane illegally, you may be fined. Standard international operation You can only make a U-turn at traffic lights when there is a U-turn permitted sign Overhead controls: Must not travel in a lane marked with an illuminated red diagonal cross or pass a traffic sign above a lane displaying a red diagonal cross.</p>	
Other common rules	<p>Hand-held phone illegal, able to use hands-free (open licence) BAC – legal limit .05% (open licence)</p>	<p>BAC – legal limit .05%</p>

Table A.17. Australia and Papua New Guinea

Country	Queensland, Australia	Papua New Guinea
Web address	https://www.qld.gov.au/transport/safety/rules/road	
Direction of traffic	Left-hand side driving	
Changing lanes and merging	<p><i>Changing lanes:</i></p> <ul style="list-style-type: none"> • Must give way to any vehicle in the lane you are moving into. • Must indicate for long enough to give warning to others. <p><i>Merging:</i></p> <ul style="list-style-type: none"> • On roads where there are lanes marked on the road.... • Must give way to traffic already in lane you are moving into. <p><i>On road where there are no lanes marked on the road:</i></p> <ul style="list-style-type: none"> • Must give way to any vehicle that is ahead of you 	
Giving way	<p><i>You are required to give way when:</i></p> <ul style="list-style-type: none"> • The rules say that you must • Give way sign • Stop or give way lines on the road • You're turning right across the path of oncoming vehicle at an intersection • You're turning left or right at a T-intersection • You're moving onto a road from a driveway or land next to a road • You're moving off from being stopped on the side of the road • You're doing a U-turn • You're turning left at an intersection with a 'left turn on red after stopping' sign <p><i>2 stop or give way signs:</i></p>	

Country	Queensland, Australia	Papua New Guinea
	<ul style="list-style-type: none"> • Both vehicles must give way to other vehicles before they must • give way to each other <p><i>1 stop or give way sign:</i></p> <ul style="list-style-type: none"> • Vehicle with give way sign must give way to vehicle with stop sign <p><i>Giving way at uncontrolled crossroads (no traffic lights, lines, or signs):</i></p> <ul style="list-style-type: none"> • Must give way to vehicles on your right <p><i>Giving way at a T-intersection:</i></p> <ul style="list-style-type: none"> • Must give way to all vehicles; except those doing a U-turn - travelling on road continuing through intersection <p><i>Giving way when turning right:</i></p> <ul style="list-style-type: none"> • When turning right at uncontrolled crossroad, you must give way to vehicles coming from opposite direction that are: driving straight ahead through the intersection, turning left at intersection. <p><i>Giving way when using slip lanes:</i></p> <ul style="list-style-type: none"> • Must give way to all traffic already on the road you're entering (expect vehicles doing a U-turn) <p><i>Giving way to buses:</i></p> <ul style="list-style-type: none"> • Build-up areas and speed limit is 70km/h or less – must give way to bus that displays a “give way to buses” sign, and signalling to enter traffic from: a bus zone, bus stop, the left side of the road. <p><i>Giving way when entering or leaving a road:</i></p> <ul style="list-style-type: none"> • Must give way to all other vehicles and signal for at least 5 seconds when you drive on the road from a parked position on the side of the road or in a median strip. <p><i>Giving way to pedestrians and cyclists:</i></p> <ul style="list-style-type: none"> • From private property or driveway - must give way to pedestrians or cyclists on the footpath or road and vehicles on the road you are entering. 	

Country	Queensland, Australia	Papua New Guinea
	<p><i>Giving way to pedestrians and cyclists:</i></p> <ul style="list-style-type: none"> • Must give way to pedestrians crossing a road you're turning into or entering. 	
<p>Keeping left/right, Overtaking</p>	<p>Single-lane roads - stay as close to the left side</p> <p>Multi-lane roads - posted speed limit 90km/h or more, or if the road has a "keep left unless overtaking" sign, you must not drive in the right-hand lane unless...</p> <ul style="list-style-type: none"> • Overtaking • Turning right • Making a U-turn • Avoiding an obstruction • Driving in congested traffic • Using a special purpose lane that you are allowed to be in. <p>Drivers are allowed to overtake on the left on all multi-lane roads</p> <p>You can only overtake another vehicle if you have a clear view of any approaching traffic and you can do so safely (and road markings and signs allow you to overtake).</p> <p>It is never legal to exceed the speed limit to overtake another vehicle</p> <p>If you're approaching a pedestrian or children's crossing, you cannot overtake or pass a vehicle that is travelling in the same direction and has stopped, or is stopped at the crossing.</p>	
<p>Road markings</p>	<p>Must not cross a double continuous centre line expect to safely to pass a cyclist</p> <p>Can overtake across a broken single centre line</p>	

Country	Queensland, Australia	Papua New Guinea
Roundabouts	<p>You can drive on a painted traffic island that is surrounded by a single continuous line for up to 50m to...</p> <ul style="list-style-type: none"> • Enter or leave the road • Enter a turning lane that begins immediately after the island. <p>When approaching a roundabout you must give way to all vehicles already on the roundabout.</p> <p>Turn left – must be in left lane Turn right – must be in right lane Straight – enter roundabout in either lane.</p>	
Safe following distance	<p>Ideal condition - 2 seconds behind the vehicle in front Add 1 extra second for each 3m trailer length when towing a trailer or caravan</p>	
Special purpose lanes	<p>Bus lane: if you are operating a bicycle, bus, taxi, limousine, or emergency vehicle.</p> <p>Must give way to bicycles when moving into a bicycle lane. Cyclists can choose whether to use a bicycle lane – it isn't mandatory.</p> <p>T2 lanes – carrying 2 or more people T3 lanes – carrying 3 or more people</p> <p>If you travel in a special purpose lane illegally, you may be fined.</p>	
Traffic lights, U-turns, overhead lane controls	<p>Standard international operation</p> <p>You can only make a U-turn at traffic lights when there is a U-turn permitted sign</p> <p>Overhead controls: Must not travel in a lane marked with an illuminated red diagonal cross or pass a traffic sign above a lane displaying a red diagonal cross.</p>	
Other common rules	<p>Hand-held phone illegal, able to use hands-free (open licence) BAC – legal limit .05% (open licence)</p>	<p>BAC – legal limit .08%</p>

Table A.18. Australia and South Korea

Country	Queensland, Australia	South Korea
Web address	https://www.qld.gov.au/transport/safety/rules/road	https://www.koroad.or.kr/en_web/view/know2.do https://www.rhinocarhire.com/Drive-Smart-Blog/Drive-Smart-South-Korea.aspx (Unable to find road safety rules for South Korea on Government sites)
Direction of traffic	Left-hand side driving	Right-hand side driving
Changing lanes and merging	<p><i>Changing lanes:</i></p> <ul style="list-style-type: none"> • Must give way to any vehicle in the lane you are moving into. • Must indicate for long enough to give warning to others. <p><i>Merging:</i></p> <ul style="list-style-type: none"> • On roads where there are lanes marked on the road... • Must give way to traffic already in lane you are moving into. <p><i>On road where there are no lanes marked on the road:</i></p> <ul style="list-style-type: none"> • Must give way to any vehicle that is ahead of you 	<p>Following is considered a lane violation:</p> <ul style="list-style-type: none"> • Driving in two lanes • Zigzagging between at least two lanes • Suddenly changing lanes and cutting off other vehicles • Crossing multiple lanes at a time • Changing lanes where it is prohibited.
Giving way	<p><i>You are required to give way when:</i></p> <ul style="list-style-type: none"> • The rules say that you must • Give way sign • Stop or give way lines on the road • You're turning right across the path of oncoming vehicle at an intersection • You're turning left or right at a T-intersection • You're moving onto a road from a driveway or land next to a road • You're moving off from being stopped on the side of the road • You're doing a U-turn 	<p>Yield to priority vehicles such as emergency vehicles</p> <p>Yield to vehicles that first enter intersection</p> <p>Yield to vehicles entering from a wide road</p> <p>Yield to vehicles entering from the road on right side</p> <p>Turning left: yield to vehicles driving straight or turning right at intersections</p> <p>Yield to vehicles coming from the side not installed with a stop or yield sign.</p>

Country	Queensland, Australia	South Korea
	<ul style="list-style-type: none"> • You're turning left at an intersection with a 'left turn on red after stopping' sign <p><i>2 stop or give way signs:</i></p> <ul style="list-style-type: none"> • Both vehicles must give way to other vehicles before they must give way to each other <p><i>1 stop or give way sign:</i></p> <ul style="list-style-type: none"> • Vehicle with give way sign must give way to vehicle with stop sign <p><i>Giving way at uncontrolled crossroads (no traffic lights, lines, or signs):</i></p> <ul style="list-style-type: none"> • Must give way to vehicles on your right <p><i>Giving way at a T-intersection:</i></p> <ul style="list-style-type: none"> • Must give way to all vehicles; except those doing a U-turn travelling on road continuing through intersection <p><i>Giving way when turning right:</i></p> <ul style="list-style-type: none"> • When turning right at uncontrolled crossroad, you must give way to vehicles coming from opposite direction that are: driving straight ahead through the intersection, turning left at intersection. <p><i>Giving way when using slip lanes:</i></p> <ul style="list-style-type: none"> • Must give way to all traffic already on the road you're entering (expect vehicles doing a U-turn) <p><i>Giving way to buses:</i></p> <ul style="list-style-type: none"> • Build-up areas and speed limit is 70km/h or less – must give way to bus that displays a “give way to buses” sign, and signalling to enter traffic from: a bus zone, bus stop, the left side of the road. <p><i>Giving way when entering or leaving a road:</i></p> <ul style="list-style-type: none"> • Must give way to all other vehicles and signal for at least 5 seconds when you drive on the road from a parked position on the side of the road or in a median strip. <p><i>Giving way to pedestrians and cyclists:</i></p>	

Country	Queensland, Australia	South Korea
Keeping left/ right, Overtaking	<ul style="list-style-type: none"> From private property or driveway - must give way to pedestrians or cyclists on the footpath or road and vehicles on the road you are entering. <p><i>Giving way to pedestrians and cyclists:</i></p> <ul style="list-style-type: none"> Must give way to pedestrians crossing a road you're turning into or entering. <p>Single-lane roads - stay as close to the left side</p> <p>Multi-lane roads - posted speed limit 90km/h or more, or if the road has a "keep left unless overtaking" sign, you must not drive in the right-hand lane unless...</p> <ul style="list-style-type: none"> Overtaking Turning right Making a U-turn Avoiding an obstruction Driving in congested traffic Using a special purpose lane that you are allowed to be in. <p>Drivers are allowed to overtake on the left on all multi-lane roads</p> <p>You can only overtake another vehicle if you have a clear view of any approaching traffic and you can do so safely (and road markings and signs allow you to overtake).</p> <p>It is never legal to exceed the speed limit to overtake another vehicle</p> <p>If you're approaching a pedestrian or children's crossing, you cannot overtake or pass a vehicle that is travelling in the same direction and has stopped, or is stopped at the crossing.</p>	<p>Do not pass when:</p> <ul style="list-style-type: none"> The vehicle in front is trying to move left or pass other vehicles There is a vehicle on the left lane that is running side by side with the vehicle in front of you There is a possibility that you may impede oncoming traffic The vehicle behind you is trying to pass your vehicle The vehicle in front is stopping or slowing down at a crosswalk or intersection The vehicle in front is stopping or slowing down in compliance with instructions of a traffic officer or to prevent accidents A school bus with the sign that indicates children are on board is driving nearby Intersection, in a tunnel, on a bridge Curve of the road Near the top or downward slope of the hill Places with safety signs that prohibit passing in compliance with the head of local police agency.

Country	Queensland, Australia	South Korea
Road markings	<p>Must not cross a double continuous centre line expect to safely to pass a cyclist</p> <p>Can overtake across a broken single centre line</p> <p>You can drive on a painted traffic island that is surrounded by a single continuous line for up to 50m to...</p> <ul style="list-style-type: none"> • Enter or leave the road • Enter a turning lane that begins immediately after the island. 	<p>Center lines refer to solid or dotted yellow lines, or facilities such as median strips and fences placed to divide opposing sides of the road. Where there is a reversible lane, the center line is the far-left dotted yellow line as directed by traffic lights.</p> <p>Vehicles may not cross a solid yellow line.</p> <p>Where there is a dotted yellow line, vehicles may temporarily cross to the other side with great caution. After then, they must return to their original lane.</p> <p>Where there are double center lines made of a solid line and a dotted line, vehicles on the side of the dotted line may cross over, whereas those on the side of the solid line may not do the same.</p>
Roundabouts	<p>When approaching a roundabout you must give way to all vehicles already on the roundabout.</p> <p>Turn left – must be in left lane</p> <p>Turn right – must be in right lane</p> <p>Straight – enter roundabout in either lane.</p>	In bad weather reduce speed by 20-50%
Safe following distance	<p>Ideal condition - 2 seconds behind the vehicle in front</p> <p>Add 1 extra second for each 3m trailer length when towing a trailer or caravan</p>	In bad weather reduce speed by 20-50%
Special purpose lanes	<p>Bus lane: if you are operating a bicycle, bus, taxi, limousine, or emergency vehicle.</p> <p>Must give way to bicycles when moving into a bicycle lane. Cyclists can choose whether to use a bicycle lane – it isn't mandatory.</p> <p>T2 lanes – carrying 2 or more people</p> <p>T3 lanes – carrying 3 or more people</p> <p>If you travel in a special purpose lane illegally, you may be fined.</p>	Bus lanes can be identified by painted blue lines

Country	Queensland, Australia	South Korea
Traffic lights, U-turns, overhead lane controls	<p>Standard international operation</p> <p>You can only make a U-turn at traffic lights when there is a U-turn permitted sign</p> <p>Overhead controls: Must not travel in a lane marked with an illuminated red diagonal cross or pass a traffic sign above a lane displaying a red diagonal cross.</p>	<p>Standard international operation</p> <p>A right turn is sometimes allowed on a red light</p> <p>Left turns are only generally allowed if there is a left arrow signal</p>
Other common rules	<p>Hand-held phone illegal, able to use hands-free (open licence)</p> <p>BAC – legal limit .05% (open licence)</p>	<p>Hand-held phone illegal, able to use hands-free</p> <p>BAC – legal limit .05%</p>

Table A.19. Australia and Chile

Country	Queensland, Australia	Chile
Web address	https://www.qld.gov.au/transport/safety/rules/road	https://www.rhinocarhire.com/Drive-Smart-Blog/Drive-Smart-Chile.aspx (Unable to find road safety rules for Chile on Government sites)
Direction of traffic	Left-hand side driving	Right-hand side driving
Changing lanes and merging	<p><i>Changing lanes:</i></p> <ul style="list-style-type: none"> • Must give way to any vehicle in the lane you are moving into. • Must indicate for long enough to give warning to others. <p><i>Merging:</i></p> <ul style="list-style-type: none"> • On roads where there are lanes marked on the road... • Must give way to traffic already in lane you are moving into. <p><i>On road where there are no lanes marked on the road:</i></p> <ul style="list-style-type: none"> • Must give way to any vehicle that is ahead of you 	
Giving way	<p><i>You are required to give way when:</i></p> <ul style="list-style-type: none"> • The rules say that you must • Give way sign • Stop or give way lines on the road • You're turning right across the path of oncoming vehicle at an intersection • You're turning left or right at a T-intersection • You're moving onto a road from a driveway or land next to a road • You're moving off from being stopped on the side of the road • You're doing a U-turn • You're turning left at an intersection with a 'left turn on red after stopping' sign <p><i>2 stop or give way signs:</i></p>	You must give way to vehicles on the right.

Country	Queensland, Australia	Chile
	<ul style="list-style-type: none"> • Both vehicles must give way to other vehicles before they must • give way to each other <p><i>1 stop or give way sign:</i></p> <ul style="list-style-type: none"> • Vehicle with give way sign must give way to vehicle with stop sign <p><i>Giving way at uncontrolled crossroads (no traffic lights, lines, or signs):</i></p> <ul style="list-style-type: none"> • Must give way to vehicles on your right <p><i>Giving way at a T-intersection:</i></p> <ul style="list-style-type: none"> • Must give way to all vehicles; except those doing a U-turn - travelling on road continuing through intersection <p><i>Giving way when turning right:</i></p> <ul style="list-style-type: none"> • When turning right at uncontrolled crossroad, you must give way to vehicles coming from opposite direction that are: driving straight ahead through the intersection, turning left at intersection. <p><i>Giving way when using slip lanes:</i></p> <ul style="list-style-type: none"> • Must give way to all traffic already on the road you're entering (expect vehicles doing a U-turn) <p><i>Giving way to buses:</i></p> <ul style="list-style-type: none"> • Build-up areas and speed limit is 70km/h or less – must give way to bus that displays a “give way to buses” sign, and signalling to enter traffic from: a bus zone, bus stop, the left side of the road. <p><i>Giving way when entering or leaving a road:</i></p> <ul style="list-style-type: none"> • Must give way to all other vehicles and signal for at least 5 seconds when you drive on the road from a parked position on the side of the road or in a median strip. <p><i>Giving way to pedestrians and cyclists:</i></p> <ul style="list-style-type: none"> • From private property or driveway - must give way to pedestrians or cyclists on the footpath or road and vehicles on the road you are entering. 	

Country	Queensland, Australia	Chile
Keeping left/ right, Overtaking	<p><i>Giving way to pedestrians and cyclists:</i></p> <ul style="list-style-type: none"> • Must give way to pedestrians crossing a road you're turning into or entering. <p>Single-lane roads - stay as close to the left side</p> <p>Multi-lane roads - posted speed limit 90km/h or more, or if the road has a "keep left unless overtaking" sign, you must not drive in the right-hand lane unless...</p> <ul style="list-style-type: none"> • Overtaking • Turning right • Making a U-turn • Avoiding an obstruction • Driving in congested traffic • Using a special purpose lane that you are allowed to be in. <p>Drivers are allowed to overtake on the left on all multi-lane roads</p> <p>You can only overtake another vehicle if you have a clear view of any approaching traffic and you can do so safely (and road markings and signs allow you to overtake).</p> <p>It is never legal to exceed the speed limit to overtake another vehicle</p> <p>If you're approaching a pedestrian or children's crossing, you cannot overtake or pass a vehicle that is travelling in the same direction and has stopped, or is stopped at the crossing.</p>	Overtake on the left
Road markings	<p>Must not cross a double continuous centre line expect to safely to pass a cyclist</p> <p>Can overtake across a broken single centre line</p>	

Country	Queensland, Australia	Chile
	<p>You can drive on a painted traffic island that is surrounded by a single continuous line for up to 50m to...</p> <ul style="list-style-type: none"> • Enter or leave the road • Enter a turning lane that begins immediately after the island. 	
Roundabouts	<p>When approaching a roundabout you must give way to all vehicles already on the roundabout.</p> <p>Turn left – must be in left lane Turn right – must be in right lane Straight – enter roundabout in either lane.</p>	
Safe following distance	<p>Ideal condition - 2 seconds behind the vehicle in front Add 1 extra second for each 3m trailer length when towing a trailer or caravan</p>	
Special purpose lanes	<p>Bus lane: if you are operating a bicycle, bus, taxi, limousine, or emergency vehicle.</p> <p>Must give way to bicycles when moving into a bicycle lane. Cyclists can choose whether to use a bicycle lane – it isn't mandatory.</p> <p>T2 lanes – carrying 2 or more people T3 lanes – carrying 3 or more people</p> <p>If you travel in a special purpose lane illegally, you may be fined.</p>	
Traffic lights, U-turns, overhead lane controls	<p>Standard international operation</p> <p>You can only make a U-turn at traffic lights when there is a U-turn permitted sign</p> <p>Overhead controls: Must not travel in a lane marked with an illuminated red diagonal cross or pass a traffic sign above a lane displaying a red diagonal cross.</p>	<p>Standard international operation</p>

Country	Queensland, Australia	Chile
Other common rules	Hand-held phone illegal, able to use hands-free (open licence) BAC – legal limit .05% (open licence)	Hand-held phone illegal, able to use hands-free BAC – legal limit .03% It is illegal to smoke and drive

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Table A.20. Australia and Brazil

Country	Queensland, Australia	Brazil
Web address	https://www.qld.gov.au/transport/safety/rules/road	https://en.wikivoyage.org/wiki/Driving_in_Brazil (Unable to find road rules for Brazil on Government sites)
Direction of traffic	Left-hand side driving	Right-hand side driving
Changing lanes and merging	<p><i>Changing lanes:</i></p> <ul style="list-style-type: none"> • Must give way to any vehicle in the lane you are moving into. • Must indicate for long enough to give warning to others. <p><i>Merging:</i></p> <ul style="list-style-type: none"> • On roads where there are lanes marked on the road... • Must give way to traffic already in lane you are moving into. <p><i>On road where there are no lanes marked on the road:</i></p> <ul style="list-style-type: none"> • Must give way to any vehicle that is ahead of you 	
Giving way	<p><i>You are required to give way when:</i></p> <ul style="list-style-type: none"> • The rules say that you must • Give way sign • Stop or give way lines on the road • You're turning right across the path of oncoming vehicle at an intersection • You're turning left or right at a T-intersection • You're moving onto a road from a driveway or land next to a road • You're moving off from being stopped on the side of the road • You're doing a U-turn • You're turning left at an intersection with a 'left turn on red after stopping' sign <p><i>2 stop or give way signs:</i></p> <ul style="list-style-type: none"> • Both vehicles must give way to other vehicles before they must 	Drivers must give way to vehicles on their right.

Country	Queensland, Australia	Brazil
	<ul style="list-style-type: none"> • give way to each other <p><i>1 stop or give way sign:</i></p> <ul style="list-style-type: none"> • Vehicle with give way sign must give way to vehicle with stop sign <p><i>Giving way at uncontrolled crossroads (no traffic lights, lines, or signs):</i></p> <ul style="list-style-type: none"> • Must give way to vehicles on your right <p><i>Giving way at a T-intersection:</i></p> <ul style="list-style-type: none"> • Must give way to all vehicles; except those doing a U-turn - travelling on road continuing through intersection <p><i>Giving way when turning right:</i></p> <ul style="list-style-type: none"> • When turning right at uncontrolled crossroad, you must give way to vehicles coming from opposite direction that are: driving straight ahead through the intersection, turning left at intersection. <p><i>Giving way when using slip lanes:</i></p> <ul style="list-style-type: none"> • Must give way to all traffic already on the road you're entering (expect vehicles doing a U-turn) <p><i>Giving way to buses:</i></p> <ul style="list-style-type: none"> • Build-up areas and speed limit is 70km/h or less – must give way to bus that displays a “give way to buses” sign, and signalling to enter traffic from: a bus zone, bus stop, the left side of the road. <p><i>Giving way when entering or leaving a road:</i></p> <ul style="list-style-type: none"> • Must give way to all other vehicles and signal for at least 5 seconds when you drive on the road from a parked position on the side of the road or in a median strip. <p><i>Giving way to pedestrians and cyclists:</i></p> <ul style="list-style-type: none"> • From private property or driveway - must give way to pedestrians or cyclists on the footpath or road and vehicles on the road you are entering. <p><i>Giving way to pedestrians and cyclists:</i></p>	

Country	Queensland, Australia	Brazil
Keeping left/ right, Overtaking	<p> <ul style="list-style-type: none"> • Must give way to pedestrians crossing a road you're turning into or entering. </p> <p> Single-lane roads - stay as close to the left side Multi-lane roads - posted speed limit 90km/h or more, or if the road has a "keep left unless overtaking" sign, you must not drive in the right-hand lane unless... </p> <ul style="list-style-type: none"> • Overtaking • Turning right • Making a U-turn • Avoiding an obstruction • Driving in congested traffic • Using a special purpose lane that you are allowed to be in. <p>Drivers are allowed to overtake on the left on all multi-lane roads</p> <p>You can only overtake another vehicle if you have a clear view of any approaching traffic and you can do so safely (and road markings and signs allow you to overtake).</p> <p>It is never legal to exceed the speed limit to overtake another vehicle</p> <p>If you're approaching a pedestrian or children's crossing, you cannot overtake or pass a vehicle that is travelling in the same direction and has stopped, or is stopped at the crossing.</p>	<p>If lines are continuous, overtaking is prohibited. If lines are broken than can overtake.</p>
Road markings	<p>Must not cross a double continuous centre line expect to safely to pass a cyclist</p> <p>Can overtake across a broken single centre line</p>	<p>Yellow or white lines.</p>

Country	Queensland, Australia	Brazil
	<p>You can drive on a painted traffic island that is surrounded by a single continuous line for up to 50m to...</p> <ul style="list-style-type: none"> • Enter or leave the road • Enter a turning lane that begins immediately after the island. 	
Roundabouts	<p>When approaching a roundabout you must give way to all vehicles already on the roundabout.</p> <p>Turn left – must be in left lane Turn right – must be in right lane Straight – enter roundabout in either lane.</p>	<p>Give right of way to vehicles already on the roundabout.</p>
Safe following distance	<p>Ideal condition - 2 seconds behind the vehicle in front Add 1 extra second for each 3m trailer length when towing a trailer or caravan</p>	
Special purpose lanes	<p>Bus lane: if you are operating a bicycle, bus, taxi, limousine, or emergency vehicle. Must give way to bicycles when moving into a bicycle lane. Cyclists can choose whether to use a bicycle lane – it isn't mandatory. T2 lanes – carrying 2 or more people T3 lanes – carrying 3 or more people If you travel in a special purpose lane illegally, you may be fined.</p>	<p>Bus lanes are only for buses and taxis; marked with blue lines or have the word Bus (in Portuguese) written on the ground.</p>
Traffic lights, U-turns, overhead lane controls	<p>Standard international operation You can only make a U-turn at traffic lights when there is a U-turn permitted sign</p> <p>Overhead controls: Must not travel in a lane marked with an illuminated red diagonal cross or pass a traffic sign above a lane displaying a red diagonal cross.</p>	<p>Standard international operation</p>
Other common rules	<p>Hand-held phone illegal, able to use hands-free (open licence) BAC – legal limit .05% (open licence)</p>	<p>BAC – legal limit .02%</p>

Table A.21. Australia and Israel

Country	Queensland, Australia	Israel
Web address	https://www.qld.gov.au/transport/safety/rules/road	https://www.rhinocarhire.com/Drive-Smart-Blog/Drive-Smart-Israel.aspx https://rent.eldan.co.il/en/traffic-laws (Unable to find a list of road rules for Israel on Government sites)
Direction of traffic	Left-hand side driving	Right-hand side driving
Changing lanes and merging	<p><i>Changing lanes:</i></p> <ul style="list-style-type: none"> • Must give way to any vehicle in the lane you are moving into. • Must indicate for long enough to give warning to others. <p><i>Merging:</i></p> <ul style="list-style-type: none"> • On roads where there are lanes marked on the road... • Must give way to traffic already in lane you are moving into. <p><i>On road where there are no lanes marked on the road:</i></p> <ul style="list-style-type: none"> • Must give way to any vehicle that is ahead of you 	
Giving way	<p><i>You are required to give way when:</i></p> <ul style="list-style-type: none"> • The rules say that you must • Give way sign • Stop or give way lines on the road • You're turning right across the path of oncoming vehicle at an intersection • You're turning left or right at a T-intersection • You're moving onto a road from a driveway or land next to a road • You're moving off from being stopped on the side of the road • You're doing a U-turn 	

Country	Queensland, Australia	Israel
	<ul style="list-style-type: none"> • You're turning left at an intersection with a 'left turn on red after stopping' sign <p><i>2 stop or give way signs:</i></p> <ul style="list-style-type: none"> • Both vehicles must give way to other vehicles before they must give way to each other <p><i>1 stop or give way sign:</i></p> <ul style="list-style-type: none"> • Vehicle with give way sign must give way to vehicle with stop sign <p><i>Giving way at uncontrolled crossroads (no traffic lights, lines, or signs):</i></p> <ul style="list-style-type: none"> • Must give way to vehicles on your right <p><i>Giving way at a T-intersection:</i></p> <ul style="list-style-type: none"> • Must give way to all vehicles; except those doing a U-turn travelling on road continuing through intersection <p><i>Giving way when turning right:</i></p> <ul style="list-style-type: none"> • When turning right at uncontrolled crossroad, you must give way to vehicles coming from opposite direction that are: driving straight ahead through the intersection, turning left at intersection. <p><i>Giving way when using slip lanes:</i></p> <ul style="list-style-type: none"> • Must give way to all traffic already on the road you're entering (expect vehicles doing a U-turn) <p><i>Giving way to buses:</i></p> <ul style="list-style-type: none"> • Build-up areas and speed limit is 70km/h or less – must give way to bus that displays a "give way to buses" sign, and signalling to enter traffic from: a bus zone, bus stop, the left side of the road. <p><i>Giving way when entering or leaving a road:</i></p> <ul style="list-style-type: none"> • Must give way to all other vehicles and signal for at least 5 seconds when you drive on the road from a parked position on the side of the road or in a median strip. <p><i>Giving way to pedestrians and cyclists:</i></p>	

Country	Queensland, Australia	Israel
	<ul style="list-style-type: none"> From private property or driveway - must give way to pedestrians or cyclists on the footpath or road and vehicles on the road you are entering. <p><i>Giving way to pedestrians and cyclists:</i></p> <ul style="list-style-type: none"> Must give way to pedestrians crossing a road you're turning into or entering. 	
Keeping left/ right, Overtaking	<p>Single-lane roads - stay as close to the left side</p> <p>Multi-lane roads - posted speed limit 90km/h or more, or if the road has a "keep left unless overtaking" sign, you must not drive in the right-hand lane unless...</p> <ul style="list-style-type: none"> Overtaking Turning right Making a U-turn Avoiding an obstruction Driving in congested traffic Using a special purpose lane that you are allowed to be in. <p>Drivers are allowed to overtake on the left on all multi-lane roads</p> <p>You can only overtake another vehicle if you have a clear view of any approaching traffic and you can do so safely (and road markings and signs allow you to overtake).</p> <p>It is never legal to exceed the speed limit to overtake another vehicle</p> <p>If you're approaching a pedestrian or children's crossing, you cannot overtake or pass a vehicle that is travelling in the same direction and has stopped, or is stopped at the crossing.</p>	<p>Overtaking on the left</p>

Country	Queensland, Australia	Israel
Road markings	<p>Must not cross a double continuous centre line expect to safely to pass a cyclist</p> <p>Can overtake across a broken single centre line</p> <p>You can drive on a painted traffic island that is surrounded by a single continuous line for up to 50m to...</p> <ul style="list-style-type: none"> • Enter or leave the road • Enter a turning lane that begins immediately after the island. 	<p>Yellow line on road marks the side margin.</p> <p>Forbidden to cross a continuous solid white line on the road.</p>
Roundabouts	<p>When approaching a roundabout you must give way to all vehicles already on the roundabout.</p> <p>Turn left – must be in left lane</p> <p>Turn right – must be in right lane</p> <p>Straight – enter roundabout in either lane.</p>	<p>Drivers to give way to all vehicles already on the roundabout.</p>
Safe following distance	<p>Ideal condition - 2 seconds behind the vehicle in front</p> <p>Add 1 extra second for each 3m trailer length when towing a trailer or caravan</p>	
Special purpose lanes	<p>Bus lane: if you are operating a bicycle, bus, taxi, limousine, or emergency vehicle.</p> <p>Must give way to bicycles when moving into a bicycle lane. Cyclists can choose whether to use a bicycle lane – it isn't mandatory.</p> <p>T2 lanes – carrying 2 or more people</p> <p>T3 lanes – carrying 3 or more people</p> <p>If you travel in a special purpose lane illegally, you may be fined.</p>	<p>Double yellow lines forming a separate lane are exclusive lanes for public transportation.</p>
Traffic lights, U-turns, overhead lane controls	<p>Standard international operation</p> <p>You can only make a U-turn at traffic lights when there is a U-turn permitted sign</p> <p>Overhead controls:</p>	<p>Standard international operation</p> <p>Turning right or left at a red light is illegal.</p> <p>Prior to the light turning red, the green light on the traffic light blinks three times and then turns amber for 3 seconds.</p>

Country	Queensland, Australia	Israel
	<p>Must not travel in a lane marked with an illuminated red diagonal cross or pass a traffic sign above a lane displaying a red diagonal cross.</p>	
<p>Other common rules</p>	<p>Hand-held phone illegal, able to use hands-free (open licence) BAC – legal limit .05% (open licence)</p>	<p>Hand-held phone illegal, able to use hands-free BAC – legal limit .05% You must carry a yellow reflective vest which you need to wear if you get out of your car on extra-urban roads.</p>

Table A.22. Australia and Malaysia

Country	Queensland, Australia	Malaysia
Web address	https://www.qld.gov.au/transport/safety/rules/road	http://www.mot.gov.my/en/lands/lands-policy-act-guidelines/road-transport-policy-act-guidelines The module with the road rules that drivers/ riders learn is with the driving school. They do not publish this module online.

Table A.18. Australia and Sweden

Country	Queensland, Australia	Sweden
Web address	https://www.qld.gov.au/transport/safety/rules/road	https://korkortonline.se/en/theory/ https://polisen.se/en/laws-and-regulations/traffic-violations/
Direction of traffic	Left-hand side driving	Right-hand side driving
Changing lanes and merging	<p><i>Changing lanes:</i></p> <ul style="list-style-type: none"> • Must give way to any vehicle in the lane you are moving into. • Must indicate for long enough to give warning to others. <p><i>Merging:</i></p> <ul style="list-style-type: none"> • On roads where there are lanes marked on the road... • Must give way to traffic already in lane you are moving into. <p><i>On road where there are no lanes marked on the road:</i></p> <ul style="list-style-type: none"> • Must give way to any vehicle that is ahead of you 	Overtake on the left (in the absence of 'no overtaking' signs)
Giving way	<p><i>You are required to give way when:</i></p> <ul style="list-style-type: none"> • The rules say that you must • Give way sign • Stop or give way lines on the road • You're turning right across the path of oncoming vehicle at an intersection • You're turning left or right at a T-intersection • You're moving onto a road from a driveway or land next to a road • You're moving off from being stopped on the side of the road • You're doing a U-turn • You're turning left at an intersection with a 'left turn on red after stopping' sign <p><i>2 stop or give way signs:</i></p> <ul style="list-style-type: none"> • Both vehicles must give way to other vehicles before they must 	<p>You are obliged to give way:</p> <ul style="list-style-type: none"> • To intersecting traffic, unless you are driving on a signed priority road • At give way signs • At stop signs • To traffic turning into your road from the right at an intersection (i.e., the right-hand rule) in the absence of priority signs • To oncoming traffic when turning left • When exiting a parking space, property, petrol station, pedestrian street, home zone hard shoulder or terrain, and any foot paths or bicycle paths that you have crossed • To buses if you are travelling 50km/h or slower

Country	Queensland, Australia	Sweden
	<ul style="list-style-type: none"> • give way to each other <p><i>1 stop or give way sign:</i></p> <ul style="list-style-type: none"> • Vehicle with give way sign must give way to vehicle with stop sign <p><i>Giving way at uncontrolled crossroads (no traffic lights, lines, or signs):</i></p> <ul style="list-style-type: none"> • Must give way to vehicles on your right <p><i>Giving way at a T-intersection:</i></p> <ul style="list-style-type: none"> • Must give way to all vehicles; except those doing a U-turn - travelling on road continuing through intersection <p><i>Giving way when turning right:</i></p> <ul style="list-style-type: none"> • When turning right at uncontrolled crossroad, you must give way to vehicles coming from opposite direction that are: driving straight ahead through the intersection, turning left at intersection. <p><i>Giving way when using slip lanes:</i></p> <ul style="list-style-type: none"> • Must give way to all traffic already on the road you're entering (expect vehicles doing a U-turn) <p><i>Giving way to buses:</i></p> <ul style="list-style-type: none"> • Build-up areas and speed limit is 70km/h or less – must give way to bus that displays a “give way to buses” sign, and signalling to enter traffic from: a bus zone, bus stop, the left side of the road. <p><i>Giving way when entering or leaving a road:</i></p> <ul style="list-style-type: none"> • Must give way to all other vehicles and signal for at least 5 seconds when you drive on the road from a parked position on the side of the road or in a median strip. <p><i>Giving way to pedestrians and cyclists:</i></p> <ul style="list-style-type: none"> • From private property or driveway - must give way to pedestrians or cyclists on the footpath or road and vehicles on the road you are entering. <p><i>Giving way to pedestrians and cyclists:</i></p>	<ul style="list-style-type: none"> • To emergency response vehicles, trains and trams, military convoys, and processions of different kinds

Country	Queensland, Australia	Sweden
	<ul style="list-style-type: none"> • Must give way to pedestrians crossing a road you're turning into or entering. 	
Keeping left/ right, Overtaking	<p>Single-lane roads - stay as close to the left side</p> <p>Multi-lane roads - posted speed limit 90km/h or more, or if the road has a "keep left unless overtaking" sign, you must not drive in the right-hand lane unless...</p> <ul style="list-style-type: none"> • Overtaking • Turning right • Making a U-turn • Avoiding an obstruction • Driving in congested traffic • Using a special purpose lane that you are allowed to be in. <p>Drivers are allowed to overtake on the left on all multi-lane roads</p> <p>You can only overtake another vehicle if you have a clear view of any approaching traffic and you can do so safely (and road markings and signs allow you to overtake).</p> <p>It is never legal to exceed the speed limit to overtake another vehicle</p> <p>If you're approaching a pedestrian or children's crossing, you cannot overtake or pass a vehicle that is travelling in the same direction and has stopped, or is stopped at the crossing.</p>	<p>Keep right, overtake on the left.</p>
Road markings	<p>Must not cross a double continuous centre line except to safely to pass a cyclist</p> <p>Can overtake across a broken single centre line</p>	

Country	Queensland, Australia	Sweden
Roundabouts	<p>You can drive on a painted traffic island that is surrounded by a single continuous line for up to 50m to...</p> <ul style="list-style-type: none"> • Enter or leave the road • Enter a turning lane that begins immediately after the island. <p>When approaching a roundabout you must give way to all vehicles already on the roundabout.</p> <p>Turn left – must be in left lane Turn right – must be in right lane Straight – enter roundabout in either lane.</p>	<p>Enter roundabout turning right, and drive counter-clockwise.</p> <p>Must indicate right when exiting roundabout. There are no clear rules about indicating left when entering roundabouts.</p> <p>Turn right – must be in right lane indicate right to exit. Turn left – must be in left lane. Can indicate left but is not a requirement.</p> <p>Straight – enter roundabout in the right lane.</p>
Safe following distance	<p>Ideal condition - 2 seconds behind the vehicle in front Add 1 extra second for each 3m trailer length when towing a trailer or caravan</p>	
Special purpose lanes	<p>Bus lane: if you are operating a bicycle, bus, taxi, limousine, or emergency vehicle.</p> <p>Must give way to bicycles when moving into a bicycle lane. Cyclists can choose whether to use a bicycle lane – it isn't mandatory.</p> <p>T2 lanes – carrying 2 or more people T3 lanes – carrying 3 or more people</p> <p>If you travel in a special purpose lane illegally, you may be fined.</p>	<p>Public transport lane (i.e., bus lane) - cyclists and class II mopeds (not EU mopeds) may also use the public transport lane. There are places where the public transport lane is only reserved during peak traffic in the morning and afternoon.</p> <p>Reversible lane – the direction of traffic flow in a reversible lane can be changed as required. For example, in peak traffic hours in the afternoon when many vehicles are travelling from the city to suburbs to home, a reversible lane may allow traffic to travel in the opposite direction so as to add an extra lane for vehicles travelling out of town to reduce the likelihood of traffic jam.</p>

Country	Queensland, Australia	Sweden
Traffic lights, U-turns, overhead lane controls	<p>Standard international operation</p> <p>You can only make a U-turn at traffic lights when there is a U-turn permitted sign</p> <p>Overhead controls: Must not travel in a lane marked with an illuminated red diagonal cross or pass a traffic sign above a lane displaying a red diagonal cross.</p>	Standard international operation
Other common rules	<p>Hand-held phone illegal, able to use hands-free (open licence)</p> <p>BAC – legal limit .05% (open licence)</p>	BAC – legal limit .02%



TMR5917 DEVELOPMENT AND TRIAL OF ROAD SAFETY COUNTERMEASURES FOR INTERNATIONAL VISITORS TO QUEENSLAND

Stage 3 Analysis: Draft Interim Report



**Draft Interim Report
February 2019**

**Bonnie Ho
Ioni Lewis
Christopher N. Watling
Ross Blackman
Sherrie-Anne Kaye
Barry Watson
Angela Watson**



*The Centre for Accident Research & Road Safety – Queensland
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Acronyms

4WD	4-wheel-drive
CARRS-Q	Centre of Accident Research & Road Safety – Queensland
ISS	International Student Services
QUT	Queensland University of Technology
TMR	Department of Transport and Main Roads (TMR)
UK	United Kingdom
USA	United States of America

1 Background and Aims

In 2004, a review of international visitors' involvement in road crashes on Australian roads was conducted by Centre of Accident Research and Road Safety Queensland (CARRS-Q), Queensland University of Technology (QUT). The study suggested that the main factors which contributed to crashes involving international visitors appeared to relate to issues associated with driving in unfamiliar situations. To the extent that crash involvement of international visitors may be due to a rather distinctive collection of factors, such findings suggest that there would be benefit in devising countermeasures to address such factors and which target international visitors as road users.

The current project is commissioned by the Queensland Department of Transport and Main Roads (TMR), and funded by the Motor Accident Insurance Commission (MAIC) through the Road Trauma Mitigation Fund. It aims to extend upon the findings from the 2004 study by addressing various limitations posed by data issues¹, and to inform the design of a range of communications, infrastructure, and driving training countermeasures relating to road safety for international visitors to Queensland. This project comprises three studies.

Phase 1 provided a Queensland update of findings from a previous study undertaken in 2004 by CARRS-Q that investigated the involvement of international visitors in road crashes. Specifically, it identifies characteristics and trends of international visitors, their reported crash involvement, as well as the types of travel they undertake within Queensland. Findings from Phase 1 helped to inform research tasks undertaken in Phase 2.

In Phase 2, research team members undertook qualitative interviews with international visitors (i.e., Task 7a) and TMR staff members (i.e., Task 7b). The aim of Study 2's interviews was to identify road safety issues as well as preferred and/or potential communication channels for international visitors to Queensland. Phase 2 also involves a third task (Task 7c), where a desktop comparative review of road rules in Queensland and other countries was conducted to identify key regulatory differences.

Phase 3 involves the development and trial of road safety related educational countermeasures for key visitor groups/profiles identified in Phases 1 and 2. There were two tasks in Phase 3. **The first task, Task 11a, aimed to identify a suitable medium of communication to international visitors in relation to road safety in Queensland. The research team undertook an audit of existing educational countermeasures addressing road safety for international visitors, drawing on materials developed and/or provided by relevant agencies (e.g., Queensland Police Service and Mareeba Shire Council), and educational resources that were identified during the completion of the literature review in Phase 1. A series of individual and group interviews were subsequently conducted with international visitors**

¹ Watson et al. (2004) noted issues with the completeness and compatibility of data available for analysis given that transport authorities tended to base their data collection on the international licence status of a driver or rider; thus potentially underestimating the full extent of road injuries experienced by international visitors. For example, if international visitors were involved in a crash as a pedestrian, passenger or cyclist; their involvement would not be included in the post-crash statistics. The current project included classification of international visitor status of crash involved persons by their residential address in addition to licence status. This likely did not capture all international visitors involved in crashes, but would have improved the estimates.



to concept-test the materials. The current report relates to Task 11a of the project; concept-testing of existing materials.

Sch.4, Part 4, s.4(1)(a)

2 Task 11a: Concept testing

2.1 Method

2.1.1 Participants

Participants were recruited through convenience and snowball sampling via email broadcasts on the University's email lists. Individuals were also directly approached by researchers on QUT campuses with an invitation to participate, and a description about the study was also disseminated to international students through QUT's International Students Services (ISS) newsletter. Rather than aiming to interview certain numbers of participants from particular countries, the recruitment approach aimed for a representation of visitors from Asia, North and South America, and Europe, seeking a mix of nationalities within these broader groups for participation. All participants received AUD\$50 cash as an incentive for participating in an interview and light refreshments were provided during the interviews.

Participants included 20 international visitors from 11 countries. All participants were required to be international visitors who were living in Australia for under 12 months, and had driven a vehicle during their current stay in Australia. Participants' date of arrival ranged from 10 January 2018 to 12 October 2018, indicating that all participants had stayed in Australia for under 12 months at the time of the interviews (as per the participation criteria). The majority of the participants were visiting Australia for education purposes (e.g., international students), while a minority indicated that they were in Australia for holiday, employment, immigration, or to accompany a spouse. More than half (60%) of participants were first-time visitors to Australia, while 40% of participants indicated that they had visited previously (with half of these visitors having driven in Australia in their preceding visit/s). Table 1 presents the socio-demographics characteristics of the overall sample.

Table 1. Socio-demographics characteristics of overall sample for Task 11a

Characteristic	N (%)
Gender and Age	10 males (50%) and 10 females (50%) $M_{age} = 27.55$, $SD = 6.53$, Range = 18 to 43 years
Purpose of visiting Australia*	Holiday = 2 Visiting friends and relatives = 0 Business = 0 Employment = 2 Education = 16 Other = 2 (immigration, accompanying spouse to Australia)
Visited Australia previously	Yes = 8 (40%; and of these international visitors, 4 had previously driven in Australia) No = 12 (60%)
Intended duration of stay	$M_{stay} = 1.58$ years, $SD = 12.43$ Range = 1 month to 4 years
Main language spoken at home	English = 1 (5%) Mandarin/Cantonese/Other Asian = 3 (15%) German/Other European = 5 (25%) Hindi/Punjabi/Sinhalese/Other Indian = 1 (5%) Other = 10 (50%)
Employment status*	Not working = 0 Studying = 15 Employed (casual) = 2 Employed (part-time) = 1 Employed (full-time) = 3 Self-employed = 0

* Participants were asked to select all options that apply

According to statistical analysis of international drivers in Queensland during Stage 1 of the project, the top ten countries of origin for visitors to Queensland who reported driving included, in order from most to least: New Zealand, China, England, United States, Germany, Japan, South Korea, Singapore, Taiwan, and Canada; with approximately 59% of international drivers from left-side driving countries, and approximately 41% from right-side driving countries. As shown in Table 2, participants included a fairly even distribution of international visitors from left- and right-side driving countries² (40% and 60%, respectively) that fairly resembled the proportions identified in Stage 1 of the overall research project.

² 'Left-side driving countries' are those countries where vehicles are required to drive on the left-side of the road and are sometimes referred to as right-hand drive countries in the literature due to the positioning of the steering wheel in the vehicles predominantly used in these countries. Similarly, 'right-side driving countries' refers to those countries where vehicles drive on the right-side of the road and are sometimes referred to as left-hand drive countries.

While a majority of Europeans were recruited in Task 7a³, the current study provided a strong representation of international visitors from Asia (50%) and some international visitors from Europe (25%), while relatively fewer international visitors were recruited from Africa and the United States of America (USA) (Table 2). Of the top ten countries of origin for visiting drivers to Queensland recruited in this study, there was some representation of visitors from Germany, United Kingdom (UK), USA, China, and South Korea; while there was limited representation of visitors from Japan, Singapore, Taiwan, and Canada.

Table 2. Participant numbers for Task 11a as a function of left- and right-driving side countries

Driving side	Country of origin	Total
Left-side driving countries	United Kingdom (Scotland) = 1	8 (40%)
	Hong Kong = 1	
	India = 1	
	Indonesia = 5 [#]	
Right-side driving countries	China = 1	12 (60%)
	South Korea = 1	
	Germany = 2	
	United States = 2*	
	Czech Republic = 1	
	Egypt = 3	
	France = 1	
	Iran = 1	
	Total	

[#] A higher proportion of participants were Indonesians because, early in the data collection process, information about the project was shared by an Indonesian participant on a WhatsApp group for Indonesian students, many of whom were keen to share their road safety experiences with the researchers. To ensure a more even representation of participants from different countries, and to halt the rapid accumulation of participants from Indonesia, a cap of n=3 was subsequently placed on the number of people from any particular country (as approved by QUT Ethics).

*Of the two participants from USA, one participant was from Columbia, while the other participant was from Egypt indicated that he had driven more frequently in the USA and very rarely in Egypt (thus was identified as a US driver for the purpose of this study).

In Stage 1, the statistical analysis of visiting drivers in Queensland indicated that approximately 49% were male, and 51% were females. The proportion of male and female participants in the current study is similar to that identified in Stage 1, with 50% male and 50% female participants. The age of participants in the current study is fairly representative of the Stage 1 results. The findings from Stage 1 indicated that younger people aged between 15 and 29 years were represented in the highest proportion of age group among visiting drivers in Queensland. Participants recruited for concept testing

³ For Task 7a, research team members recruited the majority of participants from backpacker hostels in Bundaberg and Cairns. As the majority of backpackers residing in the hostels visited by the research team comprised Europeans, the interviews comprised a majority of Europeans visiting Australia on a working holiday visa.

in Task 11a were aged between 18 and 43 years ($M_{age} = 27.55, SD = 6.53$), with 85% of participants aged between 18 and 32 years.

2.1.2 Consultation protocols

2.1.2.1 Survey

A self-report survey was used during the interviews to confirm that participants met the required study criteria and thus were eligible to participate. The first part of the survey collected basic demographic details. The second part of the survey included items to collection information about international visitors' road user experiences as a driver, cyclist, and pedestrian (see Appendix A for a full version of the survey). The paper-based survey was administered before the interview. Table 3 details the constructs in the survey that explored international visitors' experiences as a driver, pedestrian, and cyclist in Australia.

Table 3. Constructs in survey exploring international visitors' experiences as a driver, pedestrian, and cyclist

Construct	Experience as Driver	Experience as Pedestrian	Experience as Cyclist
Type of vehicle used (e.g., car, 4-wheel-drive, campervan)	✓		
Duration and frequency of travel method in Australia	✓	✓	✓
Previous experience with driving vehicle type	✓		
Current employment status, driving for work in Australia (as part of a paid job) and frequency of driving, location and distances travelled	✓		
General travel (personal use, outside of work): locations and distances	✓	✓	✓
Incidents, near-misses and/or crashes	✓	✓	✓

2.1.2.2 Interview schedule

A semi-structured interview schedule was designed to guide interview discussions with international visitors (see Appendix B). There are three sections in the interview schedule: (i) concept-testing the "Our Roads, Our Rules" brochure; (ii) concept-testing other materials supplied by the Queensland Police Service, including a wristband, key chain, and windscreen sticker; and (iii) international visitors' preference for additional information about driving and road safety. The final selection of items to concept test were chosen in consultation with TMR, including members of their communications team. Items used to concept test road safety materials have been adapted from previous research (e.g., Lewis, Ho & Lennon, 2016; Lewis, White, Watson & Elliott, 2017).

2.1.2.2.1 Concept testing: "Our Roads, Our Rules" brochure

To concept-test the "Our Roads, Our Rules" brochure, questions first explored participants' perceptions about the main message and target audience of the brochure. Questions also explored the extent to which participants found the brochure to be a useful resource (on a scale from 1 [not at all useful] to 10 [very useful]), aspects that they found helpful and would recommend to be retained (i.e., strengths),

and elements that they would like to change (i.e., limitations). Questions also assessed perceptions about information or strategies provided by the resource to help international visitors stay safe on Australian roads, and how the resource may have encouraged participants to reflect on their own driving behaviour while travelling in Australia.

2.1.2.2.2 Concept testing: Other materials

The interview schedule included questions to seek participants' comments about the wristband, key chain, and sticker; in terms of how helpful these resources are, and whether participants would use similar resources while travelling in Australia.

2.1.2.2.3 Preference for additional information

In the last section of the interview schedule, questions were included to investigate information about driving and road safety that participants would like to have known earlier, key information that they would pass on to people who have recently arrived Australia, and when they would prefer to seek this information (i.e., before or after arriving Australia). A question also explored participants' perceptions about the usefulness of a resource that allow them to experience driving scenarios in Queensland, and/or to 'practice' driving in Queensland driving environments (e.g., through videos or games).

Questions also explored participants' preference for online channels or platforms for accessing information about driving and road safety. Specifically, a prompt was included to explore whether participants would find the TMR website a helpful platform in providing driving and road safety information for international visitors.

2.1.2.3 Road safety materials for concept testing

Road safety materials provided by Queensland Police Service and the Mareeba Shire Council were concept-tested, and these stakeholders expressed a keen interest in feedback on the resources. With TMR's approval, a summary of findings will be provided to these stakeholders who provided the resources for concept testing.

2.1.2.3.1 "Our Roads, Our Rules" brochure

The main components of the brochure, as illustrated in Appendix C, includes the following:

- Front cover with the text "Our Roads, Our Rules" on top, "Stay Safe, Stay Left" in the middle, and "put road safety at the top of your to-do-list". The logos of Queensland Police Service and Suncorp are illustrated at the bottom of the front cover
- 'Tips for Staying Safe' section detailing strategies to avoid fatigue driving
- 'Remember The Fatal Five' section stating the fatal five (speeding, seat belts, drink/drug driving, fatigue, and distraction)
- A table with information about Queensland road rules, presented in English, German, French, Chinese, Korean, and Japanese
- A map of Queensland detailing travel time, fatigue zones, and instructions for interpreting the fatigue zones

- Back cover with the message “Don’t make this your last trip”, “Stay Safe, Stay Left” yellow arrow (pointing left), and a list of contacts for emergency and non-urgent assistance. The link to the Queensland Police website is also included at the bottom of the back cover.

2.1.2.3.2 Wristband

Yellow wristband with the following text (in green):

- “Aussie roads, drive left”
- “Mareeba Shire Council”

2.1.2.3.3 Key chain

Key chain with the message “Stay Safe, Stay Left” displayed in a yellow arrow pointing left. The back of the key chain displays the logos of the Queensland Police Service and Suncorp. There is also a LED light built into the key chain.

2.1.2.3.4 Sticker

Sticker for the windscreen with the message “Stay Safe, Stay Left” displayed in a yellow arrow pointing left. The size of the sticker is 4.5cm x 3cm.



Figure 1. Wristband, key chain and sticker used in concept testing.

2.1.3 Procedure

QUT Ethics approval was obtained before any research was conducted (QUT Ethics Approval Number 1800000524). Interviews were facilitated by the same researcher, and data was analysed during the process of data collection to monitor data saturation (i.e., the point at which it appears that no further new findings are emerging and similar information is being reported).

Each interview was one hour in duration, and all interviews were audio recorded. All participants were provided with detailed information about the project verbally and in participant information sheets, and their written consent was obtained at the beginning of each interview. Participant information sheets and consent forms were available in English, simplified and traditional Chinese, Japanese, Korean,



French, and German. Before the interviews began, participants were also advised that their participation was voluntary, and that their responses would be kept confidential and made anonymous when reported. All participants were asked to complete the paper-based survey prior to participating in the interviews to ensure that socio-demographic and driving-demographic information is obtained about the study's sample.

2.2 Findings

2.2.1 Road user experience

2.2.1.1 Experience as a driver

2.2.1.1.1 Driving experience in Australia

While in Australia, most participants (85%) indicated that they most frequently drove a small car or station wagon, while several (15%) reported most frequently driving a 4-wheel-drive (4WD) or SUV. Time spent driving the vehicle while in Australia ranged from 6 days to 9 months ($M = 3.26$ months, $SD = 3.07$).

Most participants appeared to have driven on a regular basis while in Australia. Specifically, 40% of participants indicated that they drove daily, or almost daily; while 20% reported that they drove a few days per week. 30% of participants said they drove 'every now and then', while only 10% indicated that they had only driven in one road trip. Most participants (80%) reported that they had driven the same type of vehicle previous to their current visit to Australia; their experience with driving the same vehicle type ranging from 15 days to 16 years ($M = 5.60$ years, $SD = 63.08$). The majority of drivers (approximately 73%) reported having at least three years of experience with driving the same vehicle type prior to their current visit to Australia. The majority of participants (70%) indicated that, when driving for personal travel (i.e., not as part of a paid job), they drove in urban areas mostly during the day and occasionally at night.

2.2.1.1.2 Employment

The majority of international visitors indicated that they were currently studying, while some indicated that they were employed in casual, part-time or full-time capacity (Table 1). Only 10% of participants responded that they drove for work in urban areas mostly at night time, and 5% of participants indicated that they drove for work in urban areas only during day time. Of those who drove for work, the average time spent driving ranged from 3 to 25 hours per week ($M = 16.00$ hours, $SD = 11.53$).

2.2.1.1.3 Near-crash incidents while driving

Some participants (35%) indicated that they had a 'close call' / near crash when driving, or that they had driven outside of their designated lane on the road. This group of participants comprised a fairly even distribution of international visitors from left- and right-side driving countries (three and four participants from left- and right-side driving countries, respectively). The number of participants who have reported a near crash can be considered as substantial, given their relatively short driving experience in Australia.

Two participants from a right-side driving country (USA) further explained that their experiences with near-crashes involved almost hitting pedestrians. One participant said that he had almost hit a pedestrian because they were not aware of a pedestrian crossing (and was also not accustomed to giving way at pedestrian crossings), the other participant said that he had a near-miss in a shared zone, not being aware that he was required to give way to pedestrians. Three participants from right-side driving countries (China, Korea, and France) said that they had almost crashed because they failed to drive to the left-hand side of the road.

2.2.1.1.4 Crashes experienced as a driver

One participant from a right-side driving country indicated that they had experienced a crash as a driver. However, this participant did not offer explanations or details about the crash.

2.2.1.2 Experiences as a cyclist

Overall, 65% of participants reported that they had cycled during their current visit, with most having cycled on pedestrian footpaths or bicycle lanes in Brisbane city and suburban areas. Of these participants, some (25%) indicated that they cycled every now and then while several said they had only ridden once. Some indicated that they cycled on a regular basis, with several indicating that they cycled consistently a few days per week, and two participants cycling daily or almost daily.

One participant (from a right-side driving country) indicated that they experienced a near crash when cycling in Australia, but did not provide any further details about the incident. No international visitors experienced a crash while cycling in Australia.

2.2.1.3 Experiences as a pedestrian

The majority of participants indicated that they have walked on footpaths or pedestrian zones in Brisbane city and suburban areas. Only two participants indicated that they have also walked or hiked in rural outback areas.

In total, 70% of participants indicated that they have walked around the streets in Australia daily, or almost daily; while 25% indicated that they regularly walk a few days per week. One participant said they would walk only occasionally.

Several participants (one from a left-side driving country [Indonesia], and two from right-side driving countries [France and USA]) indicated that they had experienced a near-miss as a pedestrian; however no further details were provided about these incidents.



2.2.2 Interview discussions

2.2.2.1 Concept testing: "Our Roads, Our Rules" Brochure

2.2.2.1.1 Main message

Of the 20 international visitors who were interviewed, none said that they had previously seen the "Our Roads, Our Rules" Brochure. Given the absence of previous exposure to the material, participants' initial and immediate responses may be more effectively elicited in the current interviews.

The majority of international visitors from both left- and right-side driving countries said that the main messaging of the brochure was to promote road safety. Many international visitors from right- and left-side countries also said that the brochure served to provide general information about road rules, as well as tips and advice to stay safe on Australian roads. Several international visitors from right- and left-side countries said that the brochure mainly served to warn against driving while fatigued, while several international visitors from right-side driving countries said the main message was about "staying left".

2.2.2.1.2 Target audience

Many international visitors from left- and right-side driving countries said that the brochure generally targeted local drivers, while several international visitors from left-side driving countries and one from right-side driving countries said that the brochure targeted only novice drivers, or those who were inexperienced in driving. According to these participants, the brochure was perceived to provide very general and basic road safety information that applied to local or new drivers. Some of these participants, along with a number of participants from left- and right-side driving countries, said that the brochure also targeted international visitors, but mainly owing to the different languages that were included.

2.2.2.1.3 Perceived usefulness of the brochure

When asked to rate the usefulness of the brochure on a scale from 1 (not at all useful) to 10 (very useful), there was no significant difference between international visitors from right-side driving countries ($M = 6.30, SD = 1.77$) and left-side driving countries ($M = 5.86, SD = 1.86$), $t(15) = -.50, p = .63$. These mean scores suggest that, overall, the international visitors found the resource to be moderately useful, with scores of 5 to 6 (out of 10).

2.2.2.1.3.1 Strengths

The majority of participants across left- and right-side countries said that they appreciated the road rules and information in the brochure that were particular to Queensland, and different to their home country. Some participants across left- and right-side driving countries suggested that the layout may be redesigned, so that repeated information are removed to create a less "busy" layout. These participants also suggested more graphics in the brochure to explain the meaning of road signs. One participant from Germany noted some grammatical errors in the German translation of the road rules and information presented in the table.

In regards to the map indicating travel times and fatigue zones, several participants from right-side countries and two from left-side driving countries experienced difficulties understanding the map. These participants typically missed the text box that stated "Indicative fatigue zones are provided when

travelling from Cairns or Brisbane only..." and thus were unable to understand how the fatigue zones were defined.

Some participants from right-side driving countries and several from left-side driving countries said that they liked the "Fatal Five" section because it served as an effective reminder of these behaviours and their contribution to road crashes; while some others from right-side driving countries and left-side driving countries said they found the tips to prevent driving while fatigued useful. Some participants from left-side and several right-side countries said they found the contacts listed at the back of the brochure useful, and would keep the brochure in their car so they could access those numbers in the event of emergencies.

Some participants from right-side driving countries and two from left-side driving countries said the map (showing travelling distance and fatigue zones) was useful, as the indication of fatigue zones would allow them to more effectively plan their trips. Two participants from right-side driving countries also said that the map was helpful in showing the scale of Queensland, and the long distances and travelling time between major landmarks. These participants said that they were not accustomed to travelling great distances in their home countries and had not expected to do so in Queensland. Despite the aforementioned positive comments about the map, it became evident towards the latter part of data collection that most participants who had commented on the map subsequent to the 15th interview (out of a total of 19 interview sessions⁴) had misinterpreted the map as indicating the pink fatigue zone as the only location where rest is needed (i.e., after driving for 9.5 hours from Cairns or Brisbane). There may be a possibility that other participants prior to Interview 15 may have similarly misinterpreted the map.

"I can conclude if you drive like over 9 hours and actually you'll have fatigue, and you'll need to have a rest." – USA, Male, aged 43

"I found really useful this thing about fatigue distance... I have driven 6.5 hours and there was a bit of an edge about almost getting into the fatigue zone... so yeah, if I didn't have this information I wouldn't know that after 9.5 hours of driving I may have been at risk... so I think this would help you to plan, like, for the rest zone, once you're... getting into the fatigue zone. Plan my trip and how to rest during the trip."
 – USA, Male, aged 29

2.2.2.1.3.2 Limitations

The majority of participants across left- and right-side countries commented that the information included in the brochure was too "general", "basic", or "preliminary" in nature, and perceived the brochure as being only somewhat relevant to them (

⁴ One interview session was conducted with two participants (both from Egypt).

Table 4).

All participants in both left- and right-side driving countries requested more detailed information about road rules particular to Queensland or Australia to be included in the brochure, or road rules that are different to the participants' own country of origin. Many international visitors across left- and right-side driving countries said that, while the brochure encourages people to drive to the speed limit, they would prefer to receive further detailed information about the default speed limits for suburban areas, CBD, school zones, and motorways in Queensland. Other suggestions regarding information to add to the brochure included illustrations of road signs, road rules for intersections and giving way, rules for when it is legal to use one's mobile phone when driving, and, similarly, rules about drink driving (i.e., how much one can drink before driving).

"No illustrations, nothing practical. If I already read this, I will still be confused on the road, because there are no road signs or road rules. It's very general information... when I come here (Australia), I know it's very strict rules for driving... so I think this is very general information." – Indonesia, Male, aged 25

"Need to add some unusual rules different from other countries. I heard it is very strict in Australia. In this case we need to add some strict conditions (rules) to Australia, not something general like drink driving." – Korea, Male, aged 36

Some participants across left- and right-side driving countries suggested that the layout may be redesigned, so as to reduce the repetition of information and thus, create a less "busy" layout. These participants also requested more graphics in the brochure to explain the meaning of road signs. One participant from Germany noted some grammatical errors in the German translation of the road rules and information presented in the table.

In regards to the map indicating travel times and fatigue zones, several participants from right-side countries and two from left-side driving countries experienced difficulties understanding the map. These participants typically missed the text box that stated "Indicative fatigue zones are provided when travelling from Cairns or Brisbane only..." and thus they were unable to understand how the fatigue zones were defined.

Table 4. Elements of the brochure that participants suggested should be retained or changed

Elements to Retain	Suggested Changes
<p>Road rules and tips/advice specific to Queensland (e.g., drive to speed limit, wear seatbelt, stay clear of or give way to wide load trucks, do not cross double white lines, look both ways at rail crossings, look out for wildlife, never drive through flood areas) – requested by many participants across left- and right-side driving countries</p> <p>Contacts listed on the back of the brochure (for Trip Zero emergency assistance, Policelink, Travel and Traffic Information, RACQ Road Conditions, Queensland Police Service) – requested by some from left- and several from right-side driving countries</p> <p>Map indicating travelling distance and fatigue zones* – requested by some from right-side and two from left-side driving countries</p> <p>The Fatal Five section – requested by some from right-side and several from left-side driving countries</p>	<p>Remove basic information already known to most drivers and add more details about road rules specific to Queensland (e.g., speed limits in suburban areas and motorways, meaning of road signs, rules for intersections and giving way, rules for mobile phone use and drink driving, etc.) – requested by majority of participants across left- and right-side driving countries</p> <p>Redesign layout (i.e., more graphics to explain road signs, remove repeated/redundant information, less condensed write and more white space) – requested by some from across left- and right-driving countries</p> <p>Map is difficult to interpret (i.e., the text box explaining how to interpret the map can be easily missed) – requested by several participants from right-side and two from left-side driving countries</p>

*It is important to note that it has only come to the attention of the interviewer, towards the latter part of data collection, that most participants subsequent to the 15th interview (out of a total of 19 interview sessions) who discussed the map had misinterpreted the map to indicate the pink fatigue zone as the only location where rest is needed (i.e., after driving for 9.5 hours from Cairns or Brisbane). There may be a possibility that other participants prior to Interview 15 may have similarly misinterpreted the map.

2.2.2.1.4 Useful strategies to stay safe

Most frequently, the ‘tips for staying safe’ section was mentioned as providing useful strategies to help them stay safe on the road. Some international visitors from left-side driving countries and several from right-side driving countries said that useful strategies were to rest before driving, be wary of driving after a long flight, not drive while feeling sleepy, taking breaks or 20-minute naps, have coffee, and avoid driving at night. Of these international visitors, one person from India (a left-hand side driving country) specifically stated that drivers should take a break every two hours.

Several participants from right-side driving countries said that a useful strategy to stay safe was to keep left (i.e., drive on the left-hand side of the road). Two participants from left-side driving countries (Indonesia and Hong Kong) and one participant from a right-side driving country (Czech Republic) said that the reminder about seatbelts as a legal requirement was an effective strategy to keep international visitors safe on Queensland roads.

Other strategies that a small number of participants identified in the brochure included the Fatal Five overall reminder (i.e., speeding, seat belts, drink/drug driving, fatigue, and distraction); reminder to not use mobile phone while driving, avoid driving through flooded areas, looking out for wildlife, not crossing double white lines when overtaking, looking both ways at rail crossings, and contacting the numbers listed in the ‘Contacts’ section in emergency situations.

2.2.2.1.5 Reflection on own driving behaviour from reading the brochure

The majority of participants in left- and right-side countries said that, as they read the brochure, they had also reflected on their own behaviour as a driver. The driving behaviour that they had reflected on shared a fairly consistent pattern with that of the strategies they had identified in the brochure, as most participants had generally reflected on strategies that they had not previously known, strategies they had used and found effective, or behaviours that they had previously engaged in there may have been potentially dangerous and are reminded by the brochure about strategies to prevent future unsafe behaviours.

2.2.2.1.5.1 Driving while fatigued

Some participants in left- and right-side driving countries reflected on the importance of not driving when tired, as well as their experiences with using certain strategies to avoid fatigue driving (e.g., switching drivers). One participant from Czech Republic (a right-side driving country) said that the brochure reminded him of his experiences while driving long distances, where he struggled with fatigue because he could not find a rest area to pull over (after driving for four hours). This participant said that he had continued to drive because he was uncertain whether it was legal to pull over for a nap on the side of the road when there were no signs indicating rest areas.

2.2.2.1.5.2 Complying with road rules

Some international visitors from left-side driving countries and several from right-side driving countries said that the brochure reminded them of their own efforts to drive under the speed limit. Most of these participants said that they had not anticipated that the speed limit may change within the same road (e.g., school zones) or motorway, and some of these participants expressed insecurities in terms of still not being familiar with or not knowing how fast to drive in the absence of speed signs.

One participant from a right-side driving country and one from a left-side driving country reflected on actions they had taken to avoid mobile phone use while driving (i.e., stopping and pulling over to use mobile phone, and/or asking a passenger to use the phone on their behalf); so as to avoid distractions as well as fines.

Several other participants from left-side driving countries said that they reflected on their efforts to follow road rules in general. One of these participants (from Hong Kong) said that, in an effort to learn the road rules and familiarise herself with the driving environment in Queensland, she had taken driving lessons from an instructor from her country of origin so he may highlight key differences to her.

"In Australia, there are some strict rules. For example, school zones. In this case, I already have seen some sign post that indicate maximum speed of 40km/h... this is not usual in my original country." – Korea, Male, 36

Some participants from right-side driving countries said that the brochure reminded them of the struggles they experienced attempting to drive on the left-hand side of the road, especially when they

had first arrived in the country. Several of these participants said that they found it particularly difficult to keep left, and to know how to behave on the road in general, when there were no cars to follow.

"Information to stay on the left, it's really important. You don't think about it, right... you do it automatically. You see the cars on the left, so you basically just go towards (them). But you pull over in the middle of nowhere, and you start to drive... and then you will go on the right side." – Czech Republic, Male, aged 22

2.2.2.2 Perceived usefulness of potential road safety videos or games designed for international visitors

The majority of visitors from left- and right-side driving countries said that they would find it useful to watch or 'practice' driving in a potential video or game designed for international visitors. Some of these international visitors (from both left- and right-side driving countries) cautioned that it is essential that the videos or games be quick, short and simple, so as to sustain their attention. Some international visitors across left- and right-side countries said that watching a video or playing a game would be "easier" and "better" than reading, and would also help overcome language barriers.

Only one visitor from a left-side driving country (Indonesia) and one from a right-side driving country (Germany) said that they would not find a driving simulation video or game useful. Specifically, the participant from Indonesia said that he would only be interested if the road safety information was relayed through a highly interactive means (such as through virtual reality games). The participant from Germany stated that, being a very skilled driver and experienced in driving at high speeds on autobahns (i.e., at 230 km/h), she would not need a driving simulation game to practice driving.

Several participants from right-side driving countries suggested that it should be mandatory for international visitors to watch a road safety video on the airplane, and/or prior to driver licences being issued to international visitors. Two visitors from a left-side driving country (Indonesia) specifically requested for a video to illustrate how roundabouts operate in Queensland, and to show when drivers should be giving way when entering roundabouts.

2.2.2.3 Road safety information useful for international visitors

In the interviews, participants were asked about information that they would like to know, or would like to have known when they had first arrived Australia. They were also asked to name aspects about driving or road safety specific to Queensland that they would tell another international visitor who has newly arrived and is planning to drive in Queensland.

Among participants from both left- and right-side driving countries, the majority said that fines were very expensive in Australia, and they were most keen to receive information about how they may avoid fines. Thus, they would provide any friends or family from overseas tips and advice that relate to avoiding fines. The majority of participants from left- and right-side driving countries said that they would like additional information about road rules that are specific to Queensland. Some international

visitors from left- and right-side driving countries said that they would like to learn about the speed limits that apply to suburban areas and motorways in Queensland. A small number of international visitors from left- and right-side driving countries said that they would like to learn the rules for parking (e.g., the meaning of road signs for parking, the “unwritten rules” for parking zones around Central Business District (CBD) and inner city suburbs, how parking metres operate, and not parking at yellow lines). Some visitors from right-side driving countries and several from left-side driving countries requested for information about giving way and indicating when entering roundabouts. Several participants from across left- and right-side driving countries also requested for information about how to correctly interpret Queensland traffic lights, particularly, those traffic lights with arrows for turning left or right.

“I would be maybe more worried about what is legal instead of what is safe... So I was a bit more interested to see what’s more legal and what’s illegal so I don’t get into trouble.” – USA, Male, aged 29

Two participants from left-side driving countries and several from right-side countries said that they were concerned for the safety of cyclists in Queensland, and requested for information about the minimum passing distances, travelling speed when overtaking a cyclist, and ways to look out for cyclists (e.g., shoulder checks). These participants also enquired about whether cyclists are “prioritised”, and whether they should give way to cyclists. Two participants from left-side countries and one from a right-side driving country questioned whether pedestrians are “prioritised”. One participant (from a left-side driving country) asked whether he needed to give way to a pedestrian when turning left at a green traffic light, but when pedestrians are also crossing at a green light.

Several participants from right- and left-side countries commented on the common presence of wildlife on Australian roads, and said that it is important for international visitors to be aware so they may avoid hitting an animal, and to provide information about ways to treat an injured animal (e.g., checking for joeys should they hit the mother kangaroo, and where they should take injured animals).

2.2.2.4 Other road safety promotional materials (wristband, key chain and sticker)

Aside from the brochure, participants were also asked for their comments on the wristband, key chain, and sticker (see Section 2.1.2.2.2). These additional road safety promotional materials all promoted a message to encourage international visitors to ‘stay left’.

Notably, the message of staying left appeared to have been interpreted differently by visitors from left- and right-side countries. While the majority from right-side driving countries correctly understood the message to be encouraging visitors to drive on the left-hand side of the road; interestingly, the majority of participants from left-side driving countries interpreted that they were asked to drive on the left lane, so that they may drive at a slower (and safer) pace and to not withhold traffic. Across both left- and right-side driving countries, many participants said that they found the ‘stay left’ message useful. A small number of participants from left-side driving countries said that they did not perceive the ‘stay left’

message to be applicable to them, or that they did not feel the message was necessary to remind international visitors to drive on the left-hand side of the road.

2.2.2.4.1 'Stay Safe, Stay Left' Sticker – most effective

Overall, the 'Stay Safe, Stay Left' sticker appears to be the most effective of the three road safety promotional materials that were shown to participants. Most visitors from right-side driving countries and some from left-side driving countries said that the sticker was a useful reminder that will be clearly visible to the driver. Two participants from left- and two from right-side driving countries said that they were not inclined to attach a sticker on their windscreen, or that rental car agencies may not allow such a sticker to be attached and that the material of the sticker should be plastic, so that it may be removed. One participant from a left-side driving country and another from a right-side driving country commented that the sticker was too small.

2.2.2.4.2 Wristband – effective for some international visitors from right-side driving countries

Some visitors from right-side driving countries and one from a left-side driving country said that the wristband would be a helpful reminder to stay left, and that they were willing to wear it. The majority of visitors from left-side driving countries, and some international visitors from right-side driving countries said that they did not find the wristband useful. These participants explained that people may not be inclined to wear the wristband because of aesthetic reasons and personal taste (e.g., that it was not attractive or fashionable, that it would not be worn by males/females, or that it appeared childish).

2.2.2.4.3 Key chain – least effective

Overall, the findings suggest that the key chain was the least effective of the three road safety promotional materials tested. The majority of visitors from right-side driving countries, and several from left-side driving countries, said that the key chain would not be useful because it will be kept out of sight when driving, most having assumed that the car key would be attached to the key chain and thus kept at the ignition area. Two visitors from right-side driving countries said they would not use the key chain because it was not attractive. Only a small number of visitors from left- and right-side countries said that the key chain would be useful.

Of note, among those who commented on the key chain as not being very useful in helping international visitors stay safe on the road, most (across both left- and right-side driving countries) had taken the key chain for personal use at the conclusion of the interview.

2.2.2.5 *Dissemination of road safety information*

2.2.2.5.1 Timing of dissemination

Most participants from left- and right-side countries said they would prefer to seek information about driving and road safety after they have arrived Australia, or very shortly before they begin driving, because the information would be most relevant to them at that time point. Many of these participants also said that they did not know what information to search for until they are exposed to the traffic environment and the experience of driving in Australia. Some participants across left- and right-side countries said that they would not actively seek information about driving and road safety for a variety of reasons, including: they had assumed Queensland's driving environment to be similar to driving at

home, they did not know what to search for, they saw it as the Australian government's responsibility to provide relevant information, or that they considered themselves too "lazy" to search for information.

Only two participants from left-side driving countries and one from a right-side driving country said that they would, in hindsight, consider seeking road safety information before they left their home country, because they would like to be prepared to drive in Queensland.

2.2.2.5.2 Channels of distribution

2.2.2.5.2.1 Word of mouth

At the time of the interviews, many international visitors from left-side driving countries and some from right-side driving countries said that they have been relying on information from friends who are international visitors to Australia, or those who have had driving experience in Australia. Typically, information was shared among international visitors through social media messaging platforms such as WhatsApp, WeChat, and Line. One participant from China (a right-side driving country) said that she had learned about road rules in Queensland from a 'Queensland Driving Manual' that was forwarded to her from a friend. On inspection, the 'Queensland Driving Manual' has been translated into simplified Chinese by an individual from a non-government entity⁵ on a voluntary basis for the interest of the Chinese community in Queensland.

One participant from India and another from France (left- and right-side countries, respectively) said that they had experience working as an Uber Eats driver while in Queensland, and said that they had obtained information about driving and road safety in Queensland from friends or other Uber Eats drivers, most of whom were also international visitors.

Across left- and right-side driving countries, many participants who had relied on word-of-mouth for information about Queensland road safety were eager to confirm the accuracy of the learnings with the interviewer, and said that they would prefer to receive information from a more credible source. It was observed, in many instances, that information about road rules shared via word-of-mouth (that the participants had checked with the interviewer) were incorrect⁶. A small number of participants in left- and right-side countries said that they would trust, and prefer, to continue receiving information about driving and road safety via word-of mouth in the future.

2.2.2.5.2.2 Airport and car rental agencies

Many participants across left- and right-side driving countries said they would appreciate brief road safety information to be included in hardcopy brochures, with links to websites that provide relevant information in greater detail. These participants suggested that brochures may be distributed at airports and car rental agencies to ensure that international visitors are exposed to road safe information as soon as they arrive in Queensland.

⁵ The participant has forwarded a copy of the manual to the research team. However, as the manual is not available to the public, the research team is unable to provide a copy of the manual to TMR.

⁶ Based on the interviewer's knowledge about Queensland road rules.

2.2.2.5.2.3 Social Media and YouTube

Overall, the majority of participants in left- and right-side driving countries said that they perceived benefits in disseminating road safety information through online platforms (although most also said that they valued hardcopy brochures). Across left- and right-side driving countries, the majority of participants said that they would like to access road safety information via Facebook (e.g., through sponsored ads, backpacker groups, groups for international students, and short videos posted by road safety authorities in Australia); while some said they would also like to see road safety information on Instagram through sponsored ads.

Some visitors from right-side driving countries and one from a left-side driving country said they had previously accessed videos about driving in Queensland on YouTube. These participants indicated that they would find it useful for more informational videos to be posted by a credible source, and suggested that the videos could be shared on Facebook.

2.2.2.5.2.4 Government websites

As mentioned above, many participants who have relied on family and friends for information said that they would prefer to access road safety information through a more credible source. However, only two participants from left-side driving countries and one from a right-side driving country specifically mentioned that they would prefer to access information from a government website (e.g., information posted on the visa or blue card application website). One visitor from a left-side country said that they would prefer to access information directly from the TMR website.

2.2.2.5.3 TMR Website

Towards the end of the interview, international visitors were asked to comment on their experiences with the local transport department's (i.e., TMR's) website, if any. Across left- and right-side driving countries, some participants said that they have visited the TMR website, while some said they have never used it.

Among those who have previously visited the TMR website for information, most (across both left- and right-side driving countries) commented that they had found the website complicated to navigate because information was very scattered. However, one international visitor from a left-side driving country (Indonesia) and one from a right-side driving country (USA) had used the TMR website and found the categories, illustrations, and animations very useful. The participant from USA said that although he struggled finding some information on the TMR website, he was able to seek assistance from TMR customer service staff via the telephone and had also found them very helpful.

Across both left- and right-side driving countries, the majority of participants suggested for a single webpage to be included on the TMR website. Some of these participants (from across left- and right-side countries) explained that they often did not know what information to search for, and would appreciate a single webpage that provides integrated information or links to other relevant sections of the TMR website. Many participants across left- and right-side driving countries also emphasised the importance of promoting TMR's website to international visitors (e.g., through Facebook and Instagram, and including a link on the 'Our Roads, Our Rules' brochure).

Pages 252 through 253 redacted for the following reasons:

Sch.4, Part 4, s.4(1)(a)

Released under RTI - DTMR



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Appendix A: Survey



Matching Code⁷: _____

ROAD SAFETY SURVEY FOR INTERNATIONAL VISITORS

SECTION A: BRIEF DEMOGRAPHIC SURVEY

This information gives us some idea about the people who participated in the study.

1. What is your gender?
 - Male
 - Female
 - Other

2. What is your current age in years?
 - _____ years

3. What was your date of arrival to Australia?
 - ____ / ____ / ____

4. What is the duration of your stay in Australia?
 - _____ days _____ weeks _____ months

5. Are you here for...
(Please select all that applies)
 - Holiday
 - Visiting friends and relatives
 - Business
 - Employment
 - Education
 - Other reason (please specify):

6. Have you personally driven a vehicle during your current stay in Australia?
 - Yes
 - No

7. Have you visited Australia previously?
 - Yes (please go to next question)
 - No (please skip next question)

8. If you have visited Australia previously, did you drive on that occasion?
 - Yes, I've driven in Australia before
 - No, I've never driven in Australia previously

9. What is your country of origin?
(Please select one option)
 - New Zealand
 - China
 - Hong Kong
 - Japan
 - Singapore
 - Taiwan
 - South Korea
 - India
 - England
 - Germany
 - Switzerland
 - United States
 - Canada
 - Other (please specify):

⁷ This is an anonymous matching code that links surveys to interview responses.



10. In your country, do people normally drive on the right- or left-hand side of the road? Left Right
11. What is the main language spoken in your home? (Please select one option)
- English
 - Mandarin/Cantonese/Other Asian
 - German/Other European
 - Hindi/Punjabi/Sinhalese/Other Indian
 - Other (please specify): _____

SECTION B: ROAD USER EXPERIENCE

The following questions relate to your experience as a driver...

1. While in Australia, what type of vehicle do you drive most often?
- Car / station wagon
 - Utility / panel van
 - 4WD / SUV
 - Motorcycle/ scooter
 - Heavy vehicle
 - Other (please state): _____
2. During your current stay in Australia, how long have you driven this type of vehicle for?
- _____ weeks _____ months _____ days
3. How frequently do you drive in Australia?
- Daily, or almost daily
 - A few days per week
 - Once every now and then
 - Only driven in one road trip
 - Other (please specify):

4. Have you driven in this type of vehicle before your current visit to Australia?

- Yes No (go to Question 5)

If yes, how many years/months of experience do you have driving this type of vehicle prior to your visit to Australia?

_____ years _____ months

5. Which of the following best describes your current employment type? (Please select all that applies)

- Not working
- Studying
- Employed (casual)
- Employed (Part-time)
- Employed (Full-time)
- Self-employed
- Other (please state) _____

6. Which of the following best describes the majority of work time (i.e., while being paid to drive) driving you do?

- I do not drive at all for work (skip the next question)
- I drive in urban areas during the day only
- I drive in urban areas mostly at night
- I often drive long distances mostly during the day
- I often drive long distances mostly at night
- Other (please state) _____

7. On average, how many hours per week do you spend driving for work (i.e., while being paid to drive)?

_____ hours/week



8. Which of the following best describes the majority of personal time (outside of work) driving you do?

- I drive in urban areas mostly during the day and occasionally at night
- I drive in urban areas mostly at night
- I often drive long distances mostly during the day
- I often drive long distances mostly at night
- Other (please state) _____

9. Have you ever had a 'close call' meaning a near-crash when you were driving or if you drove outside of your designated lane on the road?

- Yes, if yes, how many times _____
- No

10. Have you ever had a crash (a crash may be defined as an incident in which you were driving and there was damage to your vehicle, property, or persons) on the road?

- Yes, if yes, how many times _____
- No

The following questions relate to your experience as a cyclist...

11. Have you ridden a bicycle on/across/or near a public road for any duration of time during your visit?

- Yes (please continue to next question)
- No (please go to Question 16)

12. Where or what sorts of locations have you cycled?

13. How frequently did you cycle while in Queensland?

- Daily, or almost daily
- Consistently a few days per week
- Once every now and then
- Only driven in one road trip
- Other (please specify):

14. Have you ever had a 'close call' meaning a near-crash when you were cycling in Australia?

- Yes, if yes, how many times _____
- No

15. Have you ever had a crash while cycling in Australia (a crash may be defined as an incident in which you were cycling and there was damage to your vehicle, property, or persons)?

- Yes, if yes, how many times _____
- No

The following questions relate to your experience as a pedestrian in Australia...

16. Where/what sorts of locations have you walked whilst in Australia?

17. How frequently do you walk around the streets in Australia?

- Daily, or almost daily
- Consistently a few days per week
- Once every now and then
- Only driven in one road trip
- Other (please specify):



18. Have you ever had a 'close call' meaning a near-crash when you were walking as a pedestrian in Australia?

Yes, if yes, how many times _____

No

19. Have you ever been hit by a motor vehicle or bicycle while walking as a pedestrian in Australia?

Yes, if yes, how many times _____

No

Released under RTI - DTMR

Appendix B: Interview Schedule

“OUR ROADS, OUR RULES” BROCHURE

1. To start with, I would like to show you an existing road safety educational resource we have here *[show brochure to participant]*. Have you seen this brochure before?
2. What is the main message?
3. Who do you think the resource is aimed at? Why them?
4. On a scale from 1 (not useful at all) to 10 (very useful), how useful did you find this resource?
5. What information or strategies did the resource provide about things you can do to stay safe on Australian roads?
6. Did anything in the resource make you think about your own driving behaviour when travelling in Australia? If yes, what aspects of your own driving did you reflect on after using the resource?
7. If you were asked to assist in designing future education materials...
 - a) What would you change about this resource? Why?
 Prompt: What other information would you like to see in this resource?
 - b) What would you certainly want to keep the same? Why?
 Prompt: What information did you find helpful?
8. Any final comments about this resource?

OTHER MATERIALS

Also, these additional materials, stickers and arm bands, what do you think of these? How helpful are these? Would you use these (have you used something like this while travelling in Australia)?

PREFERENCE FOR ADDITIONAL INFORMATION

I would now like to broaden our discussion to your thoughts about what types of materials you believe would be helpful and then I would like to know a little more about where and how you would prefer to access these materials (e.g, online via a particular website).

I would like to start by asking, what information would you have liked to know earlier in relation to driving and road safety? If you could advise someone who was about to come to Australia and was planning to drive, what would you think is (or are) key pieces of information that you think they should know?

PROMPTS:

- Are the issues identified legal issues/road rules, licensing issues, things to be aware of [differences in vehicle type? Road environments?]
- To what extent do you think it would be helpful to have a resource that shows you some driving scenarios, in videos, and allows you to 'practice' driving in Australia? For example, would something like a game or quiz about driving in Australia be helpful?
- Do you think you would seek this information when at home before arriving in Australia or do you think it would be something that you would more likely explore once you were here?

Now, in terms of where would you expect to look for/find this information, in this day and age with everything online, do you think online resources would be the most helpful? If so, where do you think they should be (i.e., is there a particular site that you think you would be more likely found/shared among potential visitors?).

PROMPT:


- Do you think information on the local transport department webpage (or that of similar government agencies around the country) would be helpful?

Appendix C: "Our Roads, Our Rules" Brochure

**OUR ROADS
OUR RULES**

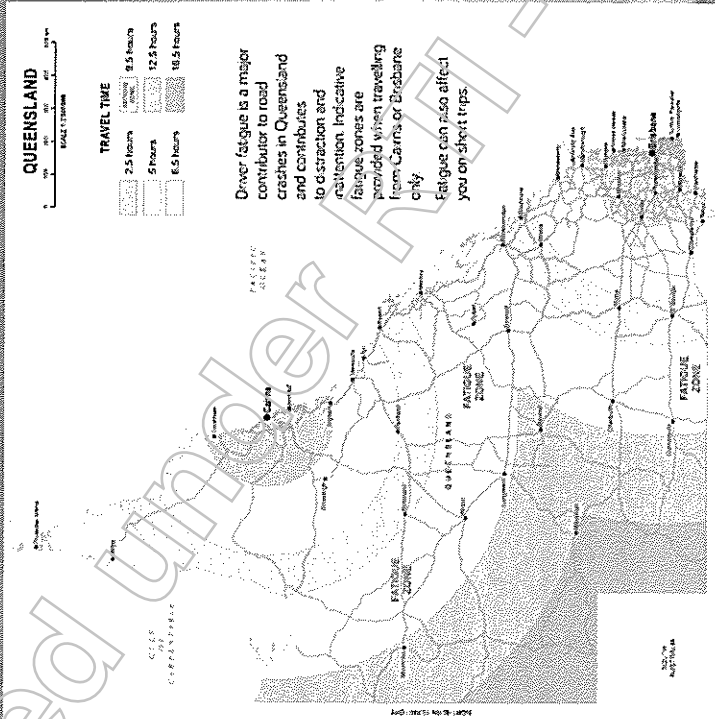
**STAY SAFE
STAY LEFT!**

**PUT ROAD SAFETY
AT THE TOP OF YOUR TO-DO-LIST**



SUNCOOP
www.suncoop.com.au

TRAVEL TIME IN QUEENSLAND



QUEENSLAND
TRAVEL TIME

0-2.5 hours	2.5-5 hours	5-8.5 hours	8.5-12.5 hours	12.5-16.5 hours
-------------	-------------	-------------	----------------	-----------------


Driver fatigue is a major contributor to road crashes in Queensland and contributes to distraction and inattention. Indicative fatigue zones are provided when travelling from Cairns or Brisbane only. Fatigue can also affect you on short trips.

DON'T MAKE THIS YOUR LAST TRIP.

**STAY SAFE
STAY LEFT!**

CONTACTS

Dial Triple Zero (000) if you need EMERGENCY assistance
For non-emergency matters, Motor Pooling, call 131 144
Traffic and Travel Information call 15 55 40
RACQ Road Conditions www.racq.com.au
Queensland Police Service www.police.qld.gov.au



www.myPolice.qld.gov.au
Far North

STAY SAFE - STAY LEFT

Tips FOR STAYING SAFE

- Do not begin a drive if you are already feeling tired.
- Avoid traveling long distances after a long flight.
- Ensure you regularly get enough sleep.
- Most people need 7-9 hours sleep per day and young people require more.
- Get a good night's sleep before travelling.
- Avoid driving at the high risk times (during hours of sleep times).
- Take frequent breaks (a rest break every 2 hours is recommended).
- Both drivers and passengers should be alert to the signs of fatigue and take immediate action.
- If you are feeling sleepy, stop immediately. The only cure for fatigue is sleep on a short nap of 10-20 minutes will prevent some fatigue.
- Allow time to recover from your sleep before continuing. Consuming a caffeine drink may help.
- Share the driving task with others.

Remember

THE FATAL FIVE: SPEEDING SEAT BELTS DRINK/DRUG DRIVING FATIGUE DISTRACTION

ENGLISH	GERMAN	FRENCH	CHINESE	KOREAN
By law you must wear a seatbelt in Queensland. Remember, it's your best chance of survival in a crash.	In Queensland ist es Gesetz den Sicherheitsgurt zu tragen. Sichere-Sigurt ist Leben.	Selon la loi, vous devez porter une ceinture de sécurité en Queensland. Les ceintures de sécurité sauvent des vies.	依照法律規定，您必須繫好安全帶，安全帶可以保護您的生命安全。	퀵트랜스포트법에서는 트벨트 착용이 의무화되어 있습니다.
Drive in the speed limit.	Respecten Sie die Geschwindigkeitsbegrenzung.	Conduisez à la limite de vitesse.	依照規定速度行駛。	속도리미트를 꼭 지켜주세요.
You must drive on the left hand side. Ask passengers if you are unsure.	Sie müssen Links fahren. Fragen Sie Ihre Passagiere, wenn Sie sich nicht sicher sind.	Vous devez conduire sur le côté gauche de la rue. Demandez aux passagers, si vous n'êtes pas sûr.	請靠左行駛，向後座乘客詢問是否要換。	右側通行주의해서 좌측을 꼭 지켜주세요.
Never drink while you're driving. It's illegal and it's dangerous. Don't drink and drive.	Kein Alkohol trinken Sie während Sie fahren. Es ist illegal und gefährlich. Nehmen Sie kein Alkohol mit, wenn Sie fahren.	Ne jamais conduire en état de ivresse. C'est illégal et dangereux. Ne prenez pas d'alcool si vous allez conduire.	切勿飲酒駕駛，可以停車在休息區作休息。	음주운전은 불법이며, 매우 위험합니다. 운전할 때는 술을 마시지 마세요.
Never use a mobile phone when driving. Distracted drivers create crashes.	Während der Fahrt benutzen Sie nicht Ihr Handy. Ablenkter Fahrer verursacht Unfälle.	Ny jamais utiliser un téléphone mobile quand vous conduisez. Les phobes quand ils regardent leur téléphone créent des accidents.	開車時禁止使用手機，這是非常危險的舉動，會導致車禍發生。	운전 중에는 핸드폰을 사용하지 않습니다.
Don't drink alcohol if you are planning to drive.	Während Sie Alkohol trinken Sie keinen Alkohol trinken Sie.	Né jamais conduire si vous avez bu de l'alcool. C'est illégal et dangereux.	喝酒不開車，開車不喝酒。	음주를 한 다음에는 운전하지 않습니다.
Allow plenty of room when passing or overtaking large trucks.	Wenn Sie überholen, Transporter überholen, gibt es einen großen Abstand halten Sie genügend Abstand.	Prévoyez suffisamment de place lors du passage d'un camion.	當你要超越大型貨車時，請給予足夠的距離。	대형차량 추월할 때는 충분한 여유 공간을 확보하세요.
Don't drink and drive. It's illegal and it's dangerous. Don't drink and drive.	Kein Alkohol trinken Sie während Sie fahren. Es ist illegal und gefährlich. Nehmen Sie kein Alkohol mit, wenn Sie fahren.	Ne jamais conduire en état de ivresse. C'est illégal et dangereux. Ne prenez pas d'alcool si vous allez conduire.	切勿飲酒駕駛，可以停車在休息區作休息。	음주운전은 불법이며, 매우 위험합니다. 운전할 때는 술을 마시지 마세요.
Take care at all crossings and never stop at a red light. Stop when you see the red light. Don't cross the red light.	Bei allen Kreuzungen und an roten Lichtern sind Sie vorsichtig. Halten Sie an einem roten Licht an. Überqueren Sie kein rotes Licht.	Prenez garde aux passages à niveau et regardez les deux côtés pour les trains.	行經鐵路平交道路，請留意車馬，若有車馬，切勿行經。	철도교차로와 횡단보도를 건너는 모든 횡단보도에서 반드시 정지 신호를 지켜주세요.
Take extra care when overtaking. Do not cross a double white line.	Überholen Sie vorsichtig. Überqueren Sie nicht doppelte Linien.	Régulariser avec prudence les dépassements. Ne pas franchir la double ligne blanche.	超車時，請格外小心駕駛，請勿跨越雙白線。	이중선 도로에서 overtaking을 할 때는 반드시 정지 신호를 지켜주세요.
Never drink through a bottle of beer. It's illegal and it's dangerous. Don't drink and drive.	Fahren Sie niemals durch eine Flasche Bier. Es ist illegal und gefährlich. Nehmen Sie kein Bier mit, wenn Sie fahren.	Ny jamais traverser une bouteille de bière. C'est illégal et dangereux. Ne prenez pas de bière si vous allez conduire.	開車時切勿飲酒，這是非常危險的舉動，會導致車禍發生。	음주운전은 불법이며, 매우 위험합니다. 운전할 때는 술을 마시지 마세요.



RoadPro
CONSULTING

Critical review
New roadside advertising technical criteria
Part A

Prepared for Department of Transport and Main Roads (Engineering and Technology Branch)

22 April 2018

Traffic Engineering and Road Safety Specialists

www.roadpro.net.au

Document control

Version history

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Draft V2	20.04.2018	Lisa Shirley	Review and update Sections 2-9
Draft V3	22.04.2017	Lisa Shirley	Editorial amendments

Contact for enquiries

Please direct any queries regarding the preparation of this document to:

Contact officer: Darren Shirley
 Director / Principal Consultant
 RoadPro Consulting

Email: darren@roadpro.net.au

Web: www.roadpro.net.au

Client sign-off

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 The following officer acknowledges receipt of this document on behalf of Department of Transport and Main Roads | Policy, Planning and Investment Division:

Name _____

Position _____

Signature _____ Date _____

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1. Introduction

This critical review of draft technical standards for new roadside advertising devices assesses the suitability of the criteria for inclusion in the Department of Transport and Main Roads' (TMR) *Roadside Advertising Manual (RAM) – Technical Volume*.

The draft technical standards have been grouped in Part A and Part B. This document is RoadPro Consulting's critical review of Part A only.

The key elements this review examines include:

- consistency with the RAM and existing technical criteria
- compliance with safety and efficiency criteria
- soundness of research
- user-friendly presentation.

Comments and recommendations have been listed for consideration, with key findings identified in the summary at the conclusion of the document.

The depth and complexity of the critical review has been restricted somewhat because some of the draft technical criteria does not clearly define the advertising device and/or its approved location.

Upon TMR's re-examination and updating of technical criteria as a result of recommendations outlined in this review, another critical review may be warranted.

2. Mobile advertising devices

Comments

Consistent with the RAM and existing technical criteria

Comment 2.1 – Reference

Section 1 cross references aerial mobile advertising; however, the referred section number is incomplete and is referred to as remote-controlled aircraft in the revised table.

Comment 2.2 – Reference

Section 1 only needs to refer to the definition for vehicles in Part 10 on the RAM as the definition of a mobile advertising device is included in the first line.

Comment 2.3 – Physical characteristics of advertising devices

Advertising devices may affect the structural integrity and/or performance of the vehicle it is fixed to, carried, or towed by. The draft criteria does not provide any advice or governance surrounding vehicle design standards. Furthermore, only limited criteria relating to the design of the advertising device itself is provided, that is, the luminance and legibility.

To maximise safety for advertisers and all road users, and to ensure a consistent standard, it is essential design criteria relevant to mobile devices is provided for:

- the advertising device (sign face, supporting structure, tie down)
- method of fixing/carrying/towing advertising device
- standard or requirements of mechanical or motorised vehicles carrying or towing devices.

Recommendations

Recommendation 2.1 – Reference

Include the relevant section number relating to aerial mobile advertising and ensure the title is consistent with name in manual.

Recommendation 2.2 – Reference

Remove reference to definition of mobile advertising device.

Recommendation 2.3 – Physical characteristics of advertising devices

Develop a list of preferred materials, construction methods, and sizes and shapes relevant to mobile advertising devices. Consult with the department's vehicle standards branch to establish general requirements and a process for informing and referring applicants to that branch where vehicle modifications are identified or required.

Update the technical criteria accordingly. Strong emphasis should be placed on the significant safety impact resulting from poor design and construction standard of mobile devices, and/or the effect on the design performance of connected vehicles.

Comments

Comment 2.4 – Reference

Section 1.3 references a train as a type of 'other device'. Trains are already referenced under 'Secondary use of mobile advertising' in Section 1.1.1.

Comment 2.5 – Physical characteristics (other devices)

No criteria has been referenced for the design of advertising devices associated with 'other device' types (Section 1.3). To maximise safety for advertisers and all road users, it is essential criteria is developed to govern the type, size, and method of advertising that can be used on the broad range of vehicles listed under this category.

Road safety and traffic efficiency

Comment 2.6 – Impact on traffic safety and efficiency

It is important to emphasise the potential adverse impact mobile advertising has on other road users. Section 1.1.1 appears to be written out of order.

Recommendations

Recommendation 2.4 - Reference

Remove the reference to train from Section 1.3.

Recommendation 2.5 - Physical characteristics (other devices)

Develop design criteria for advertising devices associated with 'other device' types listed under 1.3.

Update the technical criteria accordingly. Strong emphasis should be placed on the significant safety impact resulting from poor design and construction standard of mobile devices, and/or the effect on the design performance of connected vehicles.

Recommendation 2.6 – Impact on traffic safety and efficiency

Review the content of the introduction under Section 1.1.1, with a view to more clearly clarifying the focus on traffic safety and efficiency.

Consider reviewing and rewording, for example:

The department's primary concern is the safe and efficient use of the state-controlled road network. Mobile advertising devices, by their nature, may travel into areas where the department would normally prohibit the installation of permanent advertising devices. Mobile advertising devices are prohibited from

Comments

Comment 2.7 – Motorway standard road

Section 1.3.2 permits mobile advertising using 'other device' types on motorway standard roads. Roads constructed to motorway standard typically serve a higher order function in the road hierarchy. In some instances, it may be difficult to visually distinguish the difference between a motorway and a road constructed to a motorway standard. To maintain a consistent focus on the preservation of traffic safety and efficiency, prohibiting mobile advertising on 'other device' types is strongly recommended for roads constructed to motorway standard.

Recommendations

stopping at key locations where their distraction potential is considered to have an adverse impact on traffic safety, such as where decision making is required.

Approval to stop or park a vehicle on a state-controlled road for the primary purpose of advertising will only be considered in a low-speed environment (less than 80km/h) where the vehicle:

- is located outside the restriction distances shown in Figure C5A (Appendix C), and
- is not in a restricted parking area (such as a loading zone), and
- does not interfere with timed parking zones (where signed by the relevant local government authority).

It is also important that road congestion is minimised. Additional vehicles driving the road network for the primary purpose of advertising could contribute to congestion and create additional environmental impacts. This issue is managed by placing restrictions on the roads where mobile advertising devices can travel.

Recommendation 2.7 – Motorway standard road

Reconsider allowing mobile advertising using other device types to be allowed to advertise on motorway standard roads given the potential traffic safety impacts.

Comments

Human behaviour

Comment 2.8 – Distraction potential

Sections 1.1 and 1.3 outline the use of mobile advertising devices on vehicles and 'other device' types. To fully appreciate the distraction potential such devices pose, more detail is required about the size and type of approved devices.

Research

Comment 2.9

No research has been cited in the draft document. Without the research being cited, it is not possible to identify any gaps in the research or confidently value add. With the onus on TMR to provide evidence-based guidelines to regulate roadside advertising, the source of any guidelines, standards, and research should be cited to substantiate statements made and criteria used.

User-friendly

Comment 2.10 – Primary use of mobile advertising

The description of signage and vehicle configurations provided under Section 1.1.1 'Primary use of mobile advertising', which is incorrectly referred to as "roadside advertising", are difficult to interpret. To avoid confusion and inconsistencies with applications and approvals, descriptions should be clear and concise.

Recommendations

Recommendation 2.8 – Distraction potential

In conjunction with recommendations 2.3 and 2.5, review the distraction potential of the proposed standards and criteria developed for mobile advertising devices on vehicles and 'other device' types. Where adverse impacts or deficiencies are identified, amend the criteria accordingly to maximise traffic safety and efficiency.

Recommendation 2.9

Update the technical review to include research used, particularly for the development of criteria and restrictions.

Recommendation 2.10 – Primary use of mobile advertising

- Update title from "roadside advertising" to "mobile advertising".
- Consult with the department's vehicle standards branch and advertising industry representatives to establish a common list of vehicle types and advertising device material types that could be combined to form a mobile advertising device. Update the description of signage and vehicle configurations, adopting more recognisable terminology.

Comments

Comment 2.11 – Secondary use of mobile advertising

The introductory paragraph is not as clear as the primary use of mobile advertising section, which uses bullet points.

Comment 2.12 – Terminology

The use of the term 'dazzle' to describe the potential adverse impact of illuminated advertising devices on other road users (Section 1.1.1 and 1.1.2) is not considered an appropriate method of referencing the light source issue.

Comment 2.13 – Prohibited advertising

The structure of Section 1.1.3 'Prohibited advertising' is not easy to read. With the sentences split midsentence by a bullet point used to highlight the department's reasoning, it does not flow easily and the formatting looks awkward.

Recommendations

Recommendation 2.11 – Secondary use of mobile advertising

Consider rewording introduction to more clearly define secondary use of mobile advertising: For example:

Secondary use of mobile advertising applies to vehicles that are used during the normal course of business but are also badged with advertising.

Examples include:

- advertising on a vehicle being used for public transport purposes on a scheduled route (public bus, tram or train)
- business identification on a vehicle used in the normal course of that business and not being driven or parked for the primary purpose of advertising the business.

Recommendation 2.12 – Terminology

Reword relevant sections of the criteria so it informs that luminance levels are limited to 300 cd/m² to avoid overwhelming bright light sources impacting sight lines for other road users.

Recommendation 2.13 – Prohibited advertising

Reword the content of Section 1.1.3 to be more reader friendly, with plain English principles adopted where possible. Consider renaming the section to "Operating restrictions", reformat and reword.

For example:

Comments

Comment 2.14 – Overview

As a general comment, the writing standard of the draft criteria could be improved when compared to criteria for other devices presented in the existing manual. To assist readers with interpreting criteria, it is essential written information is presented in a clear, concise and consistent manner, adopting plain English principles where possible. Refining the writing standard would minimise confusion, misunderstanding and inconsistencies with applications and approvals, and improve the general credibility of the document.

Recommendations

Restrictions relating to the operation of mobile advertising devices include:

- Illuminated or LED-type devices fixed, carried, towed, or inside vehicles (aimed towards viewers outside of the vehicle) for the purposes of advertising are not permitted to be used at dawn, dusk, or night due to the negative impact bright light sources may have on other road users.
- Electronic devices fixed, carried, or towed by vehicles must not change messages while the vehicle is within, or visible from, the road corridor.
- Vehicles incorporating scrolling advertising devices (static messages on vinyl or similar) must not change messages while the vehicle is within, or visible from, the road corridor.
- Vehicles may not project light source images onto the road surface either while in motion or stationary (except for puddle lamps used in the normal course of a passenger entering or exiting a stationary vehicle). For further information about projecting images refer to Section XXXXX of this manual.

Recommendation 2.14 – Overview

Upon completion of technical criteria amendments to the draft, arrange a review of the writing standard by a resource experienced in policy writing.

3. Pylon signs

Comments

Consistent with the RAM and existing technical criteria

Comment 3.1 – Introduction

Additional clarification is required in Section 1 relating to the location of pylon signs, particularly about installing devices within the road reserve.

Comment 3.2 – General criteria

- Section 1.1.1 states “the dimensions of a pylon sign shall generally conform to the requirements of the particular local government’s planning scheme for devices outside of the road reserve”.
- This statement should be more definitive and provide advice that local government criteria does take precedence in the first instance. Where planning scheme or local law governance does not exist, then reference could be made to TMR-developed criteria.
- For devices located within the road reserve, consider adopting the relevant local government planning scheme or local laws in the first instance to provide a consistent approach in the general area, but only where the maximum size of

Recommendations

Recommendation 3.1 – Introduction

Consider rewording Section 1 so the approved location of devices is clear from the outset.

For example:

Pylon signs should be erected outside the road reserve on the business premise that the sign is identifying. Applications for devices located with the road reserve, immediately adjacent to the subject business premises, will only be considered where criteria outlined in Section 1.2.1 are met.

Recommendation 3.2 – General criteria

- Provide a clear indication of what criteria takes precedence or when local government agencies should be referring applications to TMR for consideration.
- Use more concise language and give a clear indication of what the requirements would be if no LGA planning scheme was in place.

Comments

devices does not exceed that supported by the department, for example 40m².

Where planning scheme or local law governance does not exist, then reference could be made to TMR-developed criteria.

- Where there is a need to mandate dimensions in this section, for example, to be used in the absence of a LGA planning scheme, criteria relating to the shape, maximum square metre size, minimum clearance height, and overall maximum height of devices must be definitive.
- Removal of advice that “Variations in shape maybe considered upon application to the District Director” is also suggested. Without definitive criteria, it is more than likely approvals across the state will be inconsistent, setting unnecessary precedence for the department to manage.

Comment 3.4 – Electronic panels

Section 1.1.1 refers to the use of electronic panels within pylon signs. Criteria is not provided about the:

- content of single electronic panels. There is a brief reference of prohibited content under Section 1. Clear guidance on prohibited content and what constitutes acceptable business premise advertising is required to avoid inconsistent approvals and practices
- size of panels containing fuel prices
- general placement of panels within a pylon sign.

Recommendations

Recommendation 3.4 – Electronic panels

Provide clear guidance on the content of single electronic panels as well as the general placement or arrangement of panels within a pylon sign.

Comments

Road safety and traffic efficiency

Comment 3.5

Many high-volume roads, particularly motorways, will have variable speed limits (VSL), ramp metering, or Lane Use Management Systems (LUMS) installed to prolong the capacity of the network or to manage safety at a critical point. These installations require a significant amount of signing and roadside furniture to achieve their operational goals. In such environments, it is important road space is reserved to locate critical traffic management devices.

Such technologies could be introduced in the future on non-motorway roads, presenting a possible conflict with existing road furniture and advertising devices. Ideally, pre-planning for such an outcome could prevent or limit expensive and/or complex/controversial relocation/removal of existing devices.

Human behaviour

Comment 3.6 – Distraction potential

Section 1.1.2 'Longitudinal placement' is difficult to interpret as it specifies mandatory longitudinal separation requirements, but also makes provision for an exemption. Furthermore, it is unclear whether the exemption applies to all devices or just pylon devices.

Regardless, it is important specified requirements are decisive and not open to interpretation. Such an outcome could result in inconsistencies with approvals and

Recommendations

Recommendation 3.5

Liaise with relevant departmental corporate business units to identify if and when emerging traffic management technologies could be introduced to non-motorway roads. Where additional roadside space may be required in the future for signing and/or road furniture, consider how this information can be captured and conveyed for consideration prior or during the design or application process for an advertising device. This might be achieved by strategic planning for road corridors or by means of an advertising management plan or similar.

Recommendation 3.6 – Distraction potential

Review and reassess Section 1.1.2 Longitudinal placement to address issues with contradictory advice and information that is difficult to interpret.

Comments

setting of an unnecessary precedent. Focus should be placed on preventing closely spaced devices, regardless of whether they are advertising or official road traffic signs, to avoid issues arising from visual clutter and increased distraction.

Also, the last sentence under this section refers to devices installed "slightly in advance of the entrance". This information appears to contradict other advice within the criteria that restricts the location of devices to within or beside the subject property. The term 'slightly' would be open to interpretation and it could be difficult for districts to manage applicant expectations.

Research

Comment 3.7

No research has been cited in the revised document. Without the research used to draft this critical review being cited, it is not possible to identify any gaps in the research or confidently value add.

User-friendly

Comment 3.8

The first sentence under Section 1.1.1 'Size and shape' is incorrectly formatted as a bullet point.

Comment 3.9

The first paragraph under Section 1.1.1 'Trivision panels and illuminated multi-advertising scrolling panels on pylon signs' replicates information already presented in Section 3.5 and Section 10 of the RAM.

Recommendations

Recommendation 3.7

With the onus on TMR to provide evidence-based guidelines to regulate roadside advertising, the source of any guidelines, standards, and research should be cited to substantiate statements made and criteria used.

Recommendation 3.8

Remove the bullet point format.

Recommendation 3.9

Remove the paragraph from the draft criteria.

Comments

Comment 3.10 – Lateral placement

To make the criteria easier to read, consider rewording and reformatting Section 1.1.2 'Lateral placement' using bullet points.

Comment 3.11

Section 1.2.1 makes provision for the installation of pylon devices within the road reserve. To improve clarity, change the wording of the first scenario from "*Pylon signs may be permitted within the road corridor if all the following criteria are met:*" to "*Replace of existing pylon signs within the road corridor may be considered where:*" Also, remove the first bullet point.

Comment 3.12 – Overview

As a general comment, the writing standard of the draft criteria could be improved when compared to criteria for other devices presented in the existing manual.

Recommendations

Recommendation 3.10 – Lateral placement

Review and rewrite Section 1.1.2 'Lateral placement'. For example:

The lateral placement of pylon signs must consider and ensure that the device is:

- located outside of the clear zone (refer Appendix B) – unless the adjacent road reserve is exceptionally narrow
- offset a minimum of 1m metre from an adjacent pedestrian or cycle path
- offset a minimum of 2.5m from overhead powerlines
- adequately offset from vegetation so regular trimming will not be required and
- located outside of the state-controlled road reserve (devices located within the road reserve, immediately adjacent to the subject business premises, will only be considered where criteria outlined in Section 1.2.1 is met).

Recommendation 3.11

Review and rewrite the technical criteria before releasing to an external audience.

Recommendation 3.12 – Overview

Upon completion of technical criteria amendments to the draft, arrange a review of the writing standard by a resource experienced in policy writing.

Comments

To assist readers with interpreting criteria, it essential written information is presented in a clear, concise and consistent manner, adopting plain English principles where possible.

Refining the writing standard would ideally minimise confusion, misunderstanding or inconsistencies with applications and approvals, and improve the general credibility of the document.

Recommendations

Released under RTI - DTMR

4. Inflatable advertising devices

Comments

Consistent with the RAM and existing technical criteria

Comment 4.1 – Definition

The list of three main types of inflatable advertising devices is repeated, and lists a different option for the third item. See below.

There are three main types of inflatable advertising devices: ground level static, ground level moving and blimps (and other tethered devices):

- Ground level static devices include large inflatable shapes, flat surfaces, or gateway type structures. Once inflated, the device is static.
- Ground level moving devices, for example wavy men/air dancers.
- Tethered aerial inflatable devices, for example tethered blimps.

As there are different types of aerial devices, such as balloon or blimp, an alternative name is recommended – such as floating aerial device—similar to the name in the bullet point list is recommended. The method of securing the device does not need to be included as it is not listed for the ground-level moving devices.

Subsequent references to this category are also inconsistent, for example, references in Section 1.2 alternative between “tethered aerial inflatable advertising devices” and “tethered inflatable advertising devices”, which could be ground-level or aerial devices.

Recommendations

Recommendation 4.1 – Definition

Update the text to ensure consistency, for example:

There are three main types of inflatable advertising devices:

- ground-level static devices, for example, large inflatable shapes, flat surfaces, or gateway-type structures. Once inflated, the device is static
- ground-level moving devices, for example, wavy men/air dancers
- floating aerial devices, for example, tethered blimps.

Update the terminology throughout the text to ensure consistency.

Comments

Comment 4.2 – Size and shape

The maximum area (85m²) and height (12.5m) outlined in Section 1.1.1 applies to all three types of inflatable devices, that is, ground-level static, ground-level moving and floating aerial. This maximum size is excessive when considering the significant distraction impact of an 85m² inflatable static sign face beside a road.

Given the different function and resulting impact on road users from the three types of devices, separate and specific size and shape criteria should be developed for each based on sound engineering standards and practices.

Comment 4.3 – Power supply

Section 1.1.1 "Power supply" refers to the use of renewable energy sources to power devices. Further information regarding renewable energy options should be provided, and whether the power source is considered or assessed by the department during the application process.

If adoption of renewable energy sources relates to all devices in the RAM or is a TMR-wide philosophy, then the manual should be updated with general advice accordingly.

Comment 4.4 – Other criteria

Reference is made to devices not moving in the wind and that they "must not be used when it is windy". Given the wide range in size of inflatable devices, as well as the subjective definition of "windy", this statement is considered impractical and too open to subjectivity.

Recommendations

Recommendation 4.2 – Size and shape

Review the size and shape criteria and develop new standards for each inflatable device type.

Recommendation 4.3 – Power supply

Review the need and appropriate location within the RAM for encouraging the use of renewable energy sources to power advertising devices.

Recommendation 4.4 – Other criteria

Consider developing a matrix that defines device type, how the device is tethered and fixed, and weather conditions, which should all play a part in determining when a device can be used.

Comments

Because the suitability of weather conditions will depend on the type, size, and composition of the advertising device, as well as the method of securing, additional clarification is required with respect to the impact of the wind.

Comment 4.4 – Inflation speed

Section 1.1.1 "Other criteria" states "Inflatable devices must inflate quickly...". Given the varying type, size, and method of inflating devices, more context relating to the reason and acceptable inflation times for the different devices is recommended.

Comment 4.5 – Other criteria

Details relating to anchor and tether points are provided in Sections 1.1.1 and 1.1.2 under "Other criteria". The information appears limited and is not presented in logically or collated in a single location.

As anchoring and tethering of inflatable advertising devices is a vital component of a safe road environment, it is essential that detailed criteria is provided in a clear and concise manner.

Comment 4.6 – Illumination

The draft criteria does not state whether inflatable devices can be illuminated. Where illuminated devices are supported, develop and reference RAM requirements within the criteria to ensure clarity. Alternatively, include a statement that illuminated devices are not permitted.

Recommendations

Recommendation 4.4 – Inflation speed

Review and amend the criteria with additional information to explain the requirement.

Recommendation 4.5 – Other criteria

Review and amend the criteria accordingly. Create a new sub-section under Physical Characteristics to outline the requirements (replacing 'Other criteria'). Consider including a diagram to illustrate tethering and anchor point requirements.

Recommendation 4.6 – Illumination

Review and amend the criteria to clearly clarify whether illumination of inflatable devices is permitted.

Comments

A review of a sample of local government laws and policies found that the illumination of inflatable devices is not consistently identified as a criteria for local government assessment of inflatable advertising devices. It is also not included in current model *Subordinate Local Law No 1.4 Installation of Advertising Devices 2011*. This inconsistency highlights the importance of stating the department's position on this matter.

Comment 4.7 – Approval duration

Although inflatable advertising devices are temporary by nature, there could be scenarios where applications are made to install static devices within the road reserve for an extended period. Such scenarios could affect planned and unplanned construction or maintenance works. It is important the department applies a waiver in such scenarios.

Road safety and traffic efficiency

Comment 4.8 – Offset from carriageway

Section 1.2 makes provision for "ground-level static" inflatable devices to be installed within the road reserve. The criteria should be amended to ensure a minimum offset from the closest traffic lane still applies when a device is located behind a safety barrier. Current wording can be interpreted that an inflatable device could be installed behind a safety barrier that is located beside a traffic lane. An outcome where a large inflatable device is located behind a barrier only a couple of metres from a traffic lane could have a significant impact on traffic safety and efficiency.

Recommendations

Recommendation 4.7 – Approval duration

Consider all the potential impacts of long duration approvals and develop or amend the conditions of approval as required.

Recommendation 4.8 - Offset from carriageway

Review offset requirements. For consistency, consider applying the clear zone offset regardless of the presence of a safety barrier.

Comments

Human behaviour

Comment 4.9 – Distraction potential

As noted in Comment 4.2, the maximum area (85m²) and height (12.5m) outlined in Section 1.1.1 appear excessive if applied as a general standard to all device types. To fully appreciate the distraction potential, more detail is required about the maximum size of each type of device.

Research

Comment 4.10

No research has been cited in the draft document. Without the research used to draft this critical review being cited, it is not possible to identify any gaps in the research or confidently value add. With the onus on TMR to provide evidence-based guidelines to regulate roadside advertising, the source of any guidelines, standards, and research should be cited to substantiate statements made and criteria used.

User-friendly

Comment 4.11 – General

Where the technical criteria is referring to a section in the Manual it is important to consistently specify this in each instance to avoid confusion with references to other sections within the technical criteria. For example, the referral to Section 3.1 in Size and Shape is the only reference that does not say "of this manual", so readers may think it was referring to Section 3.1 of the technical criteria.

Recommendations

Recommendation 4.9 – Distraction potential

In conjunction with Recommendation 4.2, review the distraction potential of the proposed standards and criteria developed for inflatable advertising devices. Where adverse impacts or deficiencies are identified, amend the criteria accordingly to maximise traffic safety and efficiency.

Recommendation 4.10

Update the technical review to include research used, particularly for the development of criteria and restrictions.

Recommendation 4.11 – General

When finalising the manual ensure there is consistent references to other sections of the manual and within the technical criteria so as not to confuse the reader.

Comments

Comment 4.12 – Overview

There were a number of style and formatting issues and inconsistencies identified with this criteria, with the draft criteria needing to be closely reviewed before release. To assist readers with interpreting criteria, it is essential written information is presented in a clear, concise and consistent manner, adopting plain English principles where possible. Refining the writing standard would ideally minimise confusion, misunderstanding or inconsistencies with applications and approvals, and improve the general credibility of the document.

Recommendations

Recommendation 4.12 – Overview

Upon completion of technical criteria amendments to the draft, arrange a review of the writing standard by a resource experienced in policy writing.

Released under RTI - DTP/MR

5. Advertising signs attached to mechanical devices

Comments

Consistent with the RAM and existing technical criteria

Comment 5.1 – Definition

Unlike other new technical criteria, this technical criteria goes straight into why the devices are hazardous.

Furthermore, the new definition to be included the revised Section 10 defines a mechanical device rather than "Advertising signs attached to mechanical devices".

Neither give the reader a clear idea of what the mechanical device is.

Comment 5.2 – Physical characteristics

Section 1.1.1 only provides detail relating to the size (2m²) of the advertising sign face. No information or criteria is provided for other key elements, such as (but not limited to):

- shape
- constructed material
- fixing requirements (to mechanical device)
- mechanical device specifications (size, movement type, speed, noise and fuel emissions, fencing/barrier to shield adjacent pedestrian movement).

The existing draft criteria does not provide sufficient content to design, make application, assess, or approve a mechanical advertising device.

Recommendations

Recommendation 5.1 – Definition

Consider updating the definition to more clearly define the meaning of "advertising signs attached to mechanical devices".

Photographs of example devices would assist.

Recommendation 5.2 – Physical characteristics

Develop a comprehensive list of criteria relating to the advertising sign face and mechanical device and update the technical criteria accordingly.

Comments

Comment 5.3 – Location criteria

The draft technical criteria only makes provision for the installation of a mechanical device “Outside the boundaries of, but visible from, state-controlled roads (not Motorways or Motorway Standard roads)” – Section 1.1.2.3.

Without sufficient criteria to design the device (refer Comment 5.2) and understand the physical characteristics, it is not possible to assess the suitability of approving a device at such locations.

Comment 5.4 – Location criteria

“Driver restriction, distraction, and restriction notice areas” and “Extra restriction based on crash history and crash rate calculations” headings and references have been included, but are omitted from all other technical criteria.

No explanatory information has been offered alongside these headings making them appear out of place and confusing to the reader.

Road safety and traffic efficiency

Comment 5.5 – Impact on traffic safety and efficiency

As noted in Comment 5.2 above, without sufficient criteria to design the device and understand the physical characteristics, it is not possible to fully appreciate the potential impacts on traffic safety and efficiency.

Recommendations

Recommendation 5.3 – Location criteria

In conjunction with Recommendation 5.2, review the suitability of allowing devices to be located “Outside the boundaries of, but visible from, state-controlled roads (not Motorways or Motorway Standard roads)”.

Recommendation 5.4 – Location criteria

Assess the need for inclusion of “Driver restriction, distraction, and restriction notice areas” and “Extra restriction based on crash history and crash rate calculations” without explanatory information to justify their inclusion.

Recommendation 5.5 – Impact on traffic safety and efficiency

In conjunction with Recommendation 5.2, review the potential impact on traffic safety and efficiency. Where adverse impacts or deficiencies are identified, amend the criteria accordingly.

Comments

Human behaviour

Comment 5.6 – Distraction potential

As noted in Comment 5.2, without sufficient criteria to design the device and understand the physical characteristics, it is not possible to fully appreciate the distraction potential.

Research

Comment 5.7

No research has been cited in the draft document. Without the research used to draft this critical review being cited, it is not possible to identify any gaps in the research or confidently value add. With the onus on TMR to provide evidence-based guidelines to regulate roadside advertising, the source of any guidelines, standards, and research should be cited to substantiate statements made and criteria used.

User-friendly

Comment 5.8 – General

There are only minor formatting and style issues identified with this technical criteria, for example, inconsistent use of capitals at the start of the bullet point list and inconsistent use of full stops at the end of the bullet point list.

Recommendations

Recommendation 5.6 – Distraction potential

In conjunction with Recommendation 5.2, review the distraction potential of the proposed standards and criteria developed for advertising signs attached to mechanical advertising devices.

Where adverse impacts or deficiencies are identified, amend the criteria accordingly to maximise traffic safety and efficiency.

Recommendation 5.7

Update the technical review to include research used.

Recommendation 5.8 – General

Upon completion of technical criteria amendments, arrange a review of the writing standard by a resource experienced in policy writing.

6. Advertising on other flat surfaces

Comments

Consistent with the RAM and existing technical criteria

Comment 6.1 – Definition

Section 1 refers to Part 10 of the RAM for a definition for flat surface devices. The new definition is not included in the current list of new definitions to be added to Part 10.

Comment 6.2 – Shipping containers and portable screen devices

Given the reference in the opening sentence, the draft technical criteria appears to make provision for shipping containers and portable screen devices to be installed within the road reserve, subject to meeting criteria outlined in Section 2 and 3.1 of the RAM. If this interpretation is correct, the general maximum size (85m²) and height (15m) also applies to both.

If shipping containers and portable screen devices are supported within the road reserve, additional information must be provided, as it is assumed TMR districts or LGAs would not support the regular installation of these devices given the potential safety, efficiency, and visual amenity impacts.

Regardless of whether shipping containers and portable screen devices are located within or outside of the road reserve, further investigation and review of the maximum size and height of devices is required to ensure they are effective without being overwhelming in size and adversely impacting traffic safety and efficiency.

Recommendations

Recommendation 6.1 - Definition

Ensure the definitions in Part 10 of the manual are updated to include flat surface devices.

Recommendation 6.2 – Shipping containers and portable screen devices

If shipping containers and portable screen devices are permitted within the road reserve, review whether additional criteria relating to their use (as opposed to other types of devices) is required. Amend the draft technical criteria accordingly.

Where devices are not supported with the road reserve, update advice accordingly and remove reference to these devices from the introduction.

Review the maximum size and height of devices and amend the draft technical criteria as required.

Comments

Road safety and traffic efficiency

Comment 6.3 – Impact on traffic safety and efficiency

As noted in Comment 6.2, without further clarification on the use and size of shipping containers and portable screen devices, it is difficult to fully understand the physical characteristics and not possible to appreciate the potential impacts on traffic safety and efficiency.

Human behaviour

Comment 6.4 – Distraction potential

As noted in Comment 6.2, without further clarification on the use and size of shipping containers and portable screen devices, it is difficult to fully understand the physical characteristics and not possible to appreciate the distraction potential.

Research

Comment 6.5

No research has been cited in the draft document including to substantiate why the billboards guidelines are being used for advertising on other flat surfaces. With the onus on TMR to provide evidence-based guidelines to regulate roadside advertising, the source of any guidelines, standards, and research should be cited to substantiate statements made and criteria used.

Recommendations

Recommendation 6.3 – Impact on traffic safety and efficiency

In conjunction with Recommendation 6.2, review the potential impact on traffic safety and efficiency from the installation of shipping containers and portable screen devices. Where adverse impacts or deficiencies are identified, amend the criteria accordingly.

Recommendation 6.4 – Distraction potential

In conjunction with Recommendation 6.2, review the distraction potential from the installation of shipping containers and portable screen devices.

Where adverse impacts or deficiencies are identified, amend the criteria accordingly to maximise traffic safety and efficiency.

Recommendation 6.5

Update the technical review to include research used.

7. Projections onto flat surfaces

Comments

Consistent with the RAM and existing technical criteria

Comment 7.1 – Introduction

The introduction under Section 1 is not written in a clear and logical manner, making it difficult to understand the intention of the written advice and is inconsistent with other introductions. Furthermore, information included in the introduction is duplicated in the "General Criteria" section, specifically:

- Projected images are not permitted within tunnels.
- Projected images must not cause a nuisance to neighbouring properties.

Comment 7.2 – General criteria

Sections 1.1 and 1.1.2 of the draft technical criteria state that "Projected images must not cause a nuisance to neighbouring properties".

Additional information is suggested to explain what constitutes being a nuisance to neighbouring properties, whether consultation with neighbouring properties is required as part of the application process, and what action is taken when complaints are received.

Recommendations

Recommendation 7.1 - Introduction

Review and rewrite the introduction to make it consistent with the introductions of the other technical criteria. These generally follow the following structure:

- an introductory sentence about the item being discussed
- reference to definitions in Section 10
- the following statement:

The following criteria replace, or are in addition to, the general criteria specified in Section 2 of this manual. Where duplicating or conflicting information, the specific permission criteria in this section override.

Recommendation 7.2 – General criteria

Update the draft technical criteria with additional information about the type of nuisance issues and suggested action.

Comments

Comment 7.3 – Projector and projection screen characteristics

The draft technical criteria refer to sections 2 and 3.6 of the RAM regarding general and specific criteria. Criteria in the RAM may not cover design criteria that could be exclusive to the projector, such as power, remote control/data access, structure, or mounting requirements.

Road safety and traffic efficiency

Comment 7.4 – Physical characteristics

Section 1.1.1 makes provision for images to be projected over a carriageway, providing it is at least 6m above the road surface.

In addition to the possible introduction of two structure hazards within the road reserve (projector and screen), the rationale for allowing imagery to be projected over a carriageway is unclear.

Consideration should be given to limiting approval only to sites where the projector and project screen are on the same side of the road.

Human behaviour

Comment 7.5 – Distraction potential

Section 1.1.1 makes provision for images to be projected over a carriageway - providing it is at least 6m above the road surface. It is unclear whether the light source between the projector and projection screen could be visible during poor light or weather conditions, such as mist or fog.

Recommendations

Recommendation 7.3 – Projector and projection screen characteristics

Check the design specifications of common projectors and cross reference against criteria in the existing RAM to ensure all there is sufficient advice and governance in place to assess and approve applications.

Recommendation 7.4 – Physical characteristics

Review the rationale for allowing images to be projected over carriageway or cite where evidence shows this has been done without impacting road safety and traffic efficiency.

Recommendation 7.5 – Distraction potential

In conjunction with Recommendation 7.4, determine whether the light source between the projector and screen is visible during poor light or weather conditions. Review the distraction potential accordingly, in particular, projection over a carriageway.

Comments

Research

Comment 7.6

No research has been cited in the draft document including how it was determined that projecting images 6m above the roadway. Without the research used to draft this critical review being cited, it is not possible to identify any gaps in the research or confidently value add.

With the onus on TMR to provide evidence-based guidelines to regulate roadside advertising, the source of any guidelines, standards, and research should be cited to substantiate statements made and criteria used.

User-friendly

Comment 7.8 – Overview

There are several locations where information is duplicated or could be simplified to assist the reader.

For example, in Section 1.2, the introductory sentence is redundant and could be reduced to the bullet point information to make it easier for the applicant to peruse.

As a general comment, it is essential written information is presented in a clear, concise and consistent manner, adopting plain English principles where possible. Refining the writing standard would ideally minimise confusion, misunderstanding or inconsistencies with applications and approvals, and improve the general credibility of the document.

Recommendations

Recommendation 7.6

Update the technical review to include research used to draft technical criteria, particularly for the development of sections 1.1.1 and 1.2.

Recommendation 7.8 – Overview

Remove any duplicated and unnecessary information. For example:

1.2.1 Within the boundaries of state-controlled roads (not Motorways or Motorway Standard roads)

~~Projections onto a flat surface are permitted within the boundaries of state-controlled roads in the following case:~~

- Projection across a carriageway may be only considered if the projector and its projected image are both at least 6m above the road carriageway (including the full length of the projected beam).

Upon completion of technical criteria amendments to the draft, arrange a review of the writing standard by a resource experienced in policy writing, as well as final review and editing for formatting, style, and grammar inconsistencies.

8. Advertising on road surfaces

Comments

Consistent with the RAM and existing technical criteria

Comment 8.1 – Introduction

The introduction refers to advertising on road surfaces including projections onto the road carriageway. As advertising via projections is also included in another section of the Manual, it would assist the reader to cross reference with that section if that is the information they are looking for.

Comment 8.2 – Reference

Section 1 refers to definitions advertising on road surfaces in Part 10. The new definitions do not include a definition for this device type.

Comment 8.3 – General

As advertising is not permitted on any state-controlled road surface, providing information about general criteria or site selection is not considered necessary.

Recommendations

Recommendation 8.1 – Introduction

Cross reference the “Projections onto flat surfaces” technical criteria in the introduction.

Recommendation 8.2 - Reference

Update the definitions in Part 10 to include advertising on road surfaces.

Recommendation 8.3 – General

Replace the content of the draft criteria with a general statement confirming advertising is not permitted on any state-controlled road surface.

A general statement regarding the rationale is recommended. For example:

The addition of advertising devices on road surfaces could distract or confuse motorist. This is an important issue to avoid, particularly at key locations or decision points. To maximise safe and efficient traffic management, advertising is not permitted on any state-controlled road surface. Road surfaces are reserved for line and pavement markings, which, in conjunction with road traffic signs, provide vital regulatory control and guidance.

Comments

Research

Comment 8.4

The statement "Only official MUTCD markings are permitted on road surfaces" essentially eliminates the need for further elaboration on this issue; however, it is not backed with information about where the statement has come from.

Where definitive statements are made, citing their source provides credibility. This statement should be updated to reflect this and provides grounds for not having to provide further information in the general criteria section.

Comment 8.5

No research has been cited in the draft document to support statements made about advertising on road surfaces not being allowed. Without the research used to draft this critical review being cited, it is not possible to identify any gaps in the research or confidently value add.

With the onus on TMR to provide evidence-based guidelines to regulate roadside advertising, the source of any guidelines, standards, and research should be cited to substantiate statements made and criteria used.

Recommendations

Recommendation 8.4

Cite the reference for the statement "Only official MUTCD markings are permitted on road surfaces."

For example:

In accordance with <insert name of relevant legislation or source of statement>, only official MUTCD markings are permitted on road surfaces on state-controlled roads in Queensland.

Recommendation 8.5

If the technical criteria maintains information relating to why advertising on road surfaces is not allowed, cite the research to make the statements used to draft the original.

9. Trivision signs and multi-advertising scrolling signs

Comments

Consistent with the RAM and existing technical criteria

Comment 9.1 – Definitions

This technical criteria introduces a second category relating to Trivision signs and illuminated multi-advertising scrolling signs, with the first being Section 3.5 of the Manual.

To assist readers with identifying there are two size categories, amend titles within the RAM to:

- Trivision signs and illuminated multi-advertising scrolling signs (Small <math><4\text{m}^2</math>)
- Trivision signs and illuminated multi-advertising scrolling signs (Large >math>>4\text{m}^2</math>)

Comment 9.2 – Physical characteristics

Section 1.1.1 of the draft technical criteria states that "Section 3.1.1.1 of the RAM also applies". However, parts of Section 3.1.1.1, such as size and maximum height, contradict the draft technical criteria.

To ensure readers clearly understand the criteria, it is essential information is consistent and easy to comprehend.

Recommendations

Recommendation 9.1 – Definitions

Review and amend naming convention for Trivision signs and illuminated multi-advertising scrolling signs to clearly distinguish the two sub-categories.

Recommendation 9.2 – Physical characteristics

Review standards for Trivision signs and illuminated multi-advertising scrolling signs (Small <math><4\text{m}^2</math>) and confirm the extent of criteria that differs from that stated in the existing RAM. Amend the content of the draft technical criteria accordingly.

Comments

Comment 9.3 – Physical characteristics

Section 1.1.1 'Minimum vertical clearance' states "The vertical clearance between the lowest panel on the advertising device and the ground shall be 0.45m or less. For elevated signs, the vertical clearance should be at least 2.5 m".

It is unclear whether the '0.45m clearance' relates to wall mounted and/or freestanding signs, and if 'elevated' is another term for freestanding.

To improve clarity for readers, additional information and explanation relating to the clearance heights and fixing arrangements (mounted or freestanding) is required.

Comment 9.4 – Longitudinal placement

Section 1.1.2 'Longitudinal placement' states that advertising "signs shall be longitudinally separated from other advertising signs at the department's discretion".

Where possible, it would be preferable to avoid suggesting the department will be using its discretion rather than an objective process because external parties may insinuate the use of inconsistent practices and assessment.

Recommendations

Recommendation 9.3 – Physical characteristics

Review the terminology and criteria relating to minimum vertical clearance heights and rewrite the technical criteria, ensuring it is presented in a clear, concise and consistent manner. Photographs of complying examples would provide further clarification.

Recommendation 9.4 - Longitudinal placement

Review the criteria and reword to clarify the intention. amend accordingly.

For example:

Trivision signs and illuminated multi-advertising scrolling signs shall be longitudinally separated from other signs and advertising devices as per the restriction areas outlined in Figure C5B in Appendix C. However, in circumstances where a proposed advertising device is not directed at traffic, such as installed on the back of a bus shelter facing pedestrians only, the department may consider approving a device within the restriction area. Such scenarios will be assessed on a case-by-case basis and not adopted as a common rule.

Comments

Road safety and traffic efficiency

Comment 9.5 – Distraction potential

Section 1.1.2 'Longitudinal placement' makes provision for the installation of advertising devices within restriction areas where the proposed devices are not facing traffic, for example, where they face pedestrians or roadside properties only.

It is essential additional advertising devices in restriction areas is only approved where it can be clearly demonstrated the proposed device cannot be seen by traffic. In addition to setting an unnecessary precedent, failure to correctly orientate advertising sign faces could have a detrimental impact on traffic safety and efficiency in restriction areas.

Research

Comment 9.6

No research has been cited in the draft document.

User-friendly

Comment 9.7 – General

There were several minor style and formatting issues and inconsistencies throughout the criteria, with the draft criteria needing to be closely reviewed before release.

Recommendations

Recommendation 9.5 – Distraction potential

For noting.

Recommendation 9.6

With the onus on TMR to provide evidence-based guidelines to regulate roadside advertising, it is recommended the source of any guidelines, standards, and research should be cited to substantiate statements made and criteria used.

Comment 9.7 – General

Upon completion of technical criteria amendments to the draft, arrange a review of the writing standard by a resource experienced in policy writing.

Comments

To assist readers with interpreting criteria, it is essential written information is presented in a clear, concise and consistent manner, adopting plain English principles where possible. Refining the writing standard would ideally minimise confusion, misunderstanding or inconsistencies with applications and approvals, and improve the general credibility of the document.

Comment 9.8 – General

Where the technical criteria is referring to a particular section in the Manual, it is important to consistently specify this in each instance to avoid confusion with references to other sections within the technical criteria.

For example, in Section 1.1 General Criteria, it says, "... assessed in accordance with sections 3.1.1 and 3.5 of this manual." Further on, in Size and Shape of Section 1.1.1, it states, "Section 3.1.1.1 also applies" and "Criteria in section 3.5.2 apply". Readers might assume these are referring to subsequent sections in the technical criteria, rather than other sections of the manual.

Recommendations

Recommendation 9.8 – General

When finalising the manual ensure there is consistent references to other sections of the manual and within the technical criteria so as not to confuse the reader.

10. Summary and additional recommendations

10.1 Summary

There were four common issues identified throughout the critical review, those being:

- writing standard
- physical characteristics
- location details
- research.

Writing standard

In comparison to the existing manual, the standard of writing of each technical criteria was generally lower when considering its readability, user-friendliness, format, grammar and overall presentation. As roadside advertising can be a complex and sensitive issue to manage, it is essential technical criteria is written in a clear, concise and consistent manner that is easily comprehended by a range of stakeholders with varying understanding of the subject matter.

Action must be taken to refine the writing standard of the draft technical criteria to minimise confusion, misunderstanding, and inconsistencies with applications and approvals, and maintain general credibility of the advertising manual.

Physical characteristics of new devices

There were numerous instances where there was a lack of detail, definition or guidance surrounding the physical characteristics of new devices. In some instances, it was difficult to fully understand what the new device was or looked like, such as mechanical devices. The general lack of information in the draft documents would contribute to confusion, misunderstanding, and inconsistencies with applications and approvals.

To maximise consistency and credibility with approval and governance, it is essential a detailed content review relating to physical characteristics is undertaken for each new type of advertising device. Where new physical characteristic information is provided in addition to, or replaces, that in the existing manuals, it must be comprehensive and presented in a manner that is easily comprehended by a range of stakeholders with varying understanding of the subject matter.

Location details

Overall, the level of detail and explanation relating to the placement of new devices was inconsistent and, in some instances, poorly written. Similar to physical characteristics, the manner and extent to which some of the information is provided would contribute to confusion, misunderstanding, and inconsistencies with applications and approvals. A detailed content review relating to the placement of the new advertising devices is required.

Research

No research has been cited in any of the draft technical criteria. As roadside advertising can be a complex and sensitive issue to manage, technical criteria needs to be based on relevant and sound research where available. Ideally, citing research would also assist readers with understanding how and why specific criteria has been identified and set.

RoadPro Consulting located research about some of the device types and about roadside advertising in general, but without the research used to draft the new technical criteria being cited, it was not possible to identify whether research we located was anything new or worth adding to the draft criteria.

With the onus on TMR to provide evidence-based guidelines to regulate roadside advertising, the source of any guidelines, standards, and research should be cited to substantiate statements made and criteria used. After citing of reference material used to develop the draft technical criteria, another critical review may be warranted.

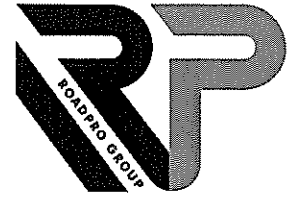
It is important to acknowledge there is limited research material available relating to the individual device types. Given the broad range of device types, their physical characteristics and locations they are installed, specific research that could be used to justify and formulate technical criteria does not exist for each scenario.

10.2 Additional recommendations

In addition to improving the technical content and writing standard for the new criteria, other suggested steps that could be taken to assist readers include:

- example photographs (similar to that in the RAM Administrative Volume) for each device type – multiple photographs where there are a range under each category
- simple flowcharts to guide readers through the criteria, emphasizing key criteria and references to other sections of the manual.

Including photographs and a flowchart with the new criteria would require similar updating of existing criteria in the roadside advertising manual to maintain consistency.



RoadPro
CONSULTING

Critical review
New roadside advertising technical criteria
Part B

Prepared for Department of Transport and Main Roads (Engineering and Technology Branch)

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Traffic Engineering and Road Safety Specialists

www.roadpro.net.au

Document control

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Version no.	Date	Changed by	Nature of amendment
Draft V1	11.05.2018	Lisa Shirley	Initial draft of combined document, incorporate team input into one document
Draft V2	17.05.2018	Darren Shirley	Review and update Sections 2-10
Draft V3	20.05.2018	Lisa Shirley	Editorial amendments
Draft V4	21.05.2018	Darren Shirley	Final review

Contact for enquiries

Please direct any queries regarding the preparation of this document to:

Contact officer: Darren Shirley
Director / Principal Consultant
RoadPro Consulting

Email: darren@roadpro.net.au

Web: www.roadpro.net.au

Client sign-off

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Document sign-off:
The following officer acknowledges receipt of this document on behalf of Department of Transport and Main Roads | Policy, Planning and Investment Division:

Name

Position

Signature

Date

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1. Introduction

This critical review of draft technical standards for new roadside advertising devices assesses the suitability of the second round of technical criteria for inclusion in the Department of Transport and Main Roads' (TMR) *Roadside Advertising Manual (RAM) – Technical Volume*.

The draft technical standards have been grouped in Part A and Part B. This document is RoadPro Consulting's critical review of Part B.

For this review, three of the technical criteria— identilites, passenger transport shelters and seats, and phone booth advertising—are an expansion of criteria in the existing RAM. While the scope of the review was to examine just the additions to the existing technical criteria, other issues were identified, feedback has been included for consideration in future reviews.

Consistent with the critical review undertaken for Part A, the key elements this review examines include:

- consistency with the RAM and existing technical criteria
- compliance with safety and efficiency criteria
- soundness of research
- user-friendly presentation.

Comments and recommendations have been listed for consideration, with key findings identified in the summary at the conclusion of the document.

Upon TMR's re-examination and updating of technical criteria as a result of recommendations outlined in this review, another review may be warranted.

2. Small billboards (<4m²)

Comments

Consistent with the RAM and existing technical criteria

Comment 2.1

Section 4 of the RAM already includes a section called "Billboards (<4m²)".

Comment 2.2

The introduction makes reference to small billboards being "generally used in rural and remote areas". If TMR intends on applying this criteria, what is the definition of "rural or remote" areas?

Comment 2.3 – Definition

The introduction makes reference to definitions for small billboards in Part 10 of the RAM. The new definition is not included in the existing RAM or in new definitions to be added to Part 10.

Comment 2.4 – Location criteria

The technical criteria specifies 'The advertising device should be placed within 2km of the town where the business is located'.

This terminology leaves it open to the interpretation of applicants and approvers. The inclusion of a maximum distance is preferable.

Recommendations

Recommendation 2.1

Consider renaming the new technical criteria. Refer to Comment and Recommendation 2.2.

Recommendation 2.2

- Define rural or remote areas for the purpose of assessment.
- Consider changing the name to reflect the restricted location, for example, Rural or Remote Billboards (<4m²).

Recommendation 2.3 – Definition

Develop new definitions for Part 10 of the manual and update to coincide with introducing new criteria for small billboards.

Recommendation 2.4 – Location criteria

Specify a maximum distance so it is consistently applied.

Comments

Comment 2.5 – Location criteria

The technical criteria does not specify the process, or that TMR has a process, to manage future applications if the number of signs allowable has been reached within the set maximum distance. For example, if a new applicant approaches the department to have a small billboard installed, but there is no room left, how does the department go about managing priority? How long are billboards allowed to be installed for? Etc.

Comment 2.6 – Location criteria

Section 1.3 specifies a town should have a population less than 5000 people to qualify for the installation of a small billboard. How is this population limit justified?

Comment 2.7

As discussed in Comment 2.4, the technical criteria does not stipulate whether the devices are being approved for permanent or temporary installation.

Research

Comment 2.8

No research has been cited. With the onus on TMR to provide evidence-based guidelines to regulate roadside advertising, the source of any guidelines, standards, and research should be cited to substantiate statements made and criteria used.

Recommendations

Recommendation 2.5 – Location criteria

Ensure a process is in place to enable districts to manage sign applications if the density of advertising signs meets the maximum.

Recommendation 2.6 – Location criteria

For noting and action as required.

Recommendation 2.7

The technical criteria needs to clarify whether these devices are permanent or temporary or both.

Recommendation 2.8

Update the technical review to include research used, particularly for the development of criteria and restrictions.

3. Small static temporary advertising signs

Comments

Consistent with the RAM and existing technical criteria

Comment 3.1 – Introduction

The introduction in Section 1 is not clear, with the location of information added about the other device types making it difficult to immediately know which device type the definition in Section 10 would be referring to.

Comment 3.2 – Definition

The introduction makes reference to a definition for small static temporary advertising signs in Part 10 of the RAM. The definition is not included in the existing RAM or in new definitions to be added to Part 10.

Recommendations

Recommendation 3.1 – Introduction

Review and rewrite the introduction to be clearer and consistent with other new technical criteria.

For example:

Small static temporary advertising signs are commonly used by community groups and businesses for the temporary advertising of products and events.

Refer to Section 10 for a definition of small static temporary advertising signs.

The following criteria replace, or are in addition to, the general criteria specified in Section 2 of this manual. Where duplicating or conflicting information, the specific permission criteria in this section override.

This criteria does not apply to charity art union prize home, election, footway, real estate, road service club, roadside vendor, safety house, and service organisation signs. For technical criteria for these types of devices, please refer to the relevant section in this manual.

Recommendation 3.2 - Definition

Develop a new definition for Part 10 of the manual and update to coincide with introducing new criteria for small static temporary advertising signs.

Comments

Comment 3.3 – General criteria

The preliminary advice focuses on the local government having jurisdiction over the approval of these signs; however, little emphasis is put on the safety considerations. The addition of this information would serve as a reminder to local government and to applicants that TMR can intervene if safety is compromised.

Comment 3.4 – Physical characteristics

In Section 1.1.1 the headings “Physical characteristics” and “Size” do not relate to the content below.

Recommendations

Recommendation 3.3 – General criteria

Review and rewrite the General Criteria section to put more emphasis on the potential safety issues that local government must consider, as well as making the information more concise. For example:

TMR does not permit the installation of small static temporary advertising signs within the boundaries of state-controlled roads. Small static temporary advertising signs outside the state-controlled road corridor are managed by local government under their local laws.

Advertising message criteria

As it could be difficult for passing motorists to read the contents of a small advertising device installed outside of the road reserve, local governments are encouraged to limit content to minimise the overall distraction potential. For example, content for an event could be limited to essential information such as:

- name of event
- location of event
- date(s) of event
- time(s) of event (if applicable).

Other information, such as admission fees, phone numbers, email address, or website address, could be restricted to advertising devices only visible to pedestrian traffic in the immediate area.

Recommendation 3.4 – Physical characteristics

Delete heading titles as they do not apply to the content.

Comments

Comment 3.5 – Site selection

Section 1.1.3.3 states “Small static temporary advertising signs may be permitted outside the boundaries of, but visible from, state-controlled roads (not motorways or motorway standard roads) if placed in accordance with local government requirements and with sections 1.1.1 and 1.1.2.”

The requirements of Section 1.1.2 are then restated even though they are on the same page as the site selection section. The technical criteria should be clear enough and easy enough to use that applicants can easily refer back to check the requirements without having them repeated again in site selection.

Comment 3.6 – Site selection

Section 1.1.3.4 provides two different versions of the same sentence about the department not permitting small static temporary advertising signs outside the boundaries of, but visible from motorways or motorway standard roads.

The second sentence, however, is not consistent with the standard wording used in technical criteria in Parts A or B and also offers an explanation as to why they are not allowed, when this information has already been explained.

Recommendations

Recommendation 3.5 – Site selection

Remove the additional information about the criteria.

For example:

1.1.3.3 Outside the boundaries of, but visible from, state-controlled roads (not Motorways or Motorway Standard roads)

Small static temporary advertising signs may be permitted outside the boundaries of, but visible from, state-controlled roads (not motorways or motorway standard roads) if placed in accordance with local government requirements and with sections 1.1.1 and 1.1.2.

~~Small static temporary advertising signs should not be located where they are visible from roads with a speed limit of 80km/h or greater.~~

~~Where the speed limit is less than 80 km/h signs should be located in accordance with figure CSA in Appendix C.~~

Recommendation 3.6 – Site selection

Remove the second sentence to ensure consistency with the Site Selection wording used in other technical criteria. For example:

1.1.3.4 Outside the boundaries of, but visible from, Motorways or Motorway Standard roads

Small static temporary advertising signs are not permitted outside the boundaries of, but visible from, a motorways or motorway standard roads.

~~Small static temporary advertising signs should not be located outside the boundaries of, but visible from, motorways or motorway standard roads as the speed limit in these locations is 80km/h or higher.~~

Comments

Recommendations

Research

Comment 3.7

No research has been cited to support justifying why the small static temporary advertising signs are not permitted within the boundaries of state-controlled roads.

Recommendation 3.7

With the onus on TMR to provide evidence-based guidelines to regulate roadside advertising, the source of any guidelines, standards, and research should be cited to substantiate statements made and criteria used.

Released under RTI - Q/TMR

4. Passenger transport shelters and seats

Comments

Consistent with the RAM and existing technical criteria

Comment 4.1

The technical criteria states that 'Advertising copy/content on passenger shelters and seats should be directed at pedestrians, not motorists.'

This type of wording is noncommittal, open to interpretation, and likely to result in inconsistencies with approval and practices. It also makes it unclear if advertising visible to motorists is acceptable.

Furthermore, the rest of the criteria is written in a manner that suggests it is acceptable for advertising to be visible to passing traffic.

Comment 4.2 – Introduction

The introduction does not follow the same structure as that used for the other technical criteria in Part B and those in Part A.

Recommendations

Recommendation 4.1

As this critical review only covered new content, consider strengthening the wording of the technical criteria in future reviews of the RAM.

Recommendation 4.2 – Introduction

As this critical review only covered new content, consider updating the introduction in the future reviews of the RAM. These generally adopt the following structure:

- an introductory sentence about the item being discussed
- reference to definitions in Section 10
- the following statement:

The following criteria replace, or are in addition to, the general criteria specified in Section 2 of this manual. Where duplicating or conflicting information, the specific permission criteria in this section override.

Comments

Comment 4.3 – Advertising message criteria, dwell times, power supply and data logging

This section only includes information about the advertising message. No information is included about dwell times, power supply, or data logging.

Human behaviour

Comment 4.4 – Distraction potential

Further to Comment 4.1, if the intent is to limit advertising to pedestrian traffic, the technical criteria should stipulate devices must face be parallel to the adjacent road.

Research

Comment 4.5

No research has been cited in the document; however, it is acknowledged that the new content does reference the RAM.

Recommendations

Recommendation 4.3 – Advertising message criteria, dwell times, power supply and data logging

Change the heading to just "Advertising message criteria" to avoid confusion.

Recommendation 4.4 – Distraction potential

Future reviews of the RAM should consider changing the technical criteria to reflect intent to face pedestrian traffic.

Recommendation 4.5

Future reviews of the RAM and the passenger transport shelters and seats technical criteria should incorporate research demonstrating the distraction potential of street-level advertisements, such as passenger transport shelters, on the driving task.

5. Identilites (expansion of existing chapter in manual)

Comments

Consistent with the RAM and existing technical criteria

Comment 5.1 – Illumination and luminance

Section 1.1.3 states 'For an electronic advertising panel, the following values are suggested maximums for varying lighting conditions. The final luminance levels are to be determined based on the site specific requirements.'

The term 'site-specific requirements' offers little insight to applicants.

Road safety and traffic efficiency

Comment 5.2 – Support structure and electrical connection

Identilite structures are designed to be frangible (Section 1.1.2) given their close proximity to traffic lanes. Given the increased risk of an electronic panel being struck by an errant vehicle, has consideration been given to how the panel fails, that is, does not disintegrate into shards of glass and become a spearing hazard.

Human behaviour

Comment 5.3 – Lateral placement requirements

As noted in Section 3.6 of the RAM, '...electronic billboards are conspicuous by design and may have greater potential to distract.....'. What investigations or measures have been taken to assess any increased risk of distraction given the identilite electronic panel can be installed within 0.3m to 0.5m metres from the edge of the carriageway (Section 1.2.2)?

Recommendations

Recommendation 5.1 – Illumination and luminance

Provide a definition or further information about site-specific requirements so there is no confusion for applicants.

Recommendation 5.2 – Support structure and electrical connection

Review the structural integrity of electronic panels to determine if there is any increased risk to vehicular or pedestrian traffic resulting from the identilite being struck by an errant vehicle.

Recommendation 5.3 – Lateral placement requirements

Review or confirm what measures have been taken to ensure the electronic panels within the identilites pose no greater distraction than electronic billboards. This is particularly important given their close proximity to static regulatory signs and pedestrian and traffic on intersecting legs.

Comments

Comment 5.4 – Lateral placement requirements

With respect to the location of identilites, should the luminance level of a device located immediately adjacent to a carriageway (0.3m to 0.5m) be the same as a device offset 3m? How does this impact adjacent static (retro-reflective) sign faces?

Comment 5.5 – Multiple installations at one intersection

Section 1.1.3 states 'For an electronic advertising panel, the following values are suggested maximums for varying lighting conditions. The final luminance levels are to be determined based on the site specific requirements.'

Is there an increased issue with multiple devices at one intersection (Section 1.2.8)?

Recommendations

Recommendation 5.4 – Lateral placement requirements

Review the luminance level for the electronic panels given they will be installed immediately adjacent to the carriageway, with a view to ensuring that the brightness of the light will not be overwhelming.

Recommendation 5.5 – Multiple installations at one intersection

Where multiple identilites are installed at an intersection, it is recommended that TMR check or confirm there is sufficient evidence that multiple electronic panels in close proximity would not increase risk to road users.

6. Church, school, local government, and community changeable message signs

Comments

Consistent with the RAM and existing technical criteria

Comment 6.1 – Title

The title is long and is not necessarily an exhaustive list of the type of organisations that may qualify for a sign.

Comment 6.2 – Introduction

The introduction does not follow the same structure as that used for the other technical criteria in Part B and those in Part A.

Other important information relating to road safety should be included in the General Criteria section.

Comment 6.3 – Definition

The introduction makes reference to a definition for church, school, local government, and community changeable message signs in Part 10 of the RAM. The definition is not included in the existing RAM or in new definitions to be added to Part 10.

Recommendations

Recommendation 6.1 - Title

Consider changing the name to Community Changeable Message Signs and use the definition to list the different types of organisations these signs may apply to.

Recommendation 6.2 – Introduction

- Review and rewrite the introduction to make it consistent with the introductions of the technical criteria and those in Part A. For example:

This technical criteria is to assist churches, schools, local governments and community groups to set general location, operation and message requirements for Community Changeable Message Signs (CMS). CMS allow a church, school, local government, or community group to communicate with their members, parents and students and the local community.

Refer to Section 10 for a definition of Community Changeable Message Signs.

The following criteria replace, or are in addition to, the general criteria specified in Section 2 of this manual. Where duplicating or conflicting information, the specific permission criteria in this section override.

- Move other information from the introduction into the General Criteria.

Recommendation 6.3 – Definition

Develop a new definition for Part 10 of the manual and update to coincide with introducing new criteria for small static temporary advertising signs.

Comments

Comment 6.4 – General criteria

The introduction includes information about the possible method of mounting a static sign, “these may be at ground level or mounted on top of a pole”, but no mention is made about electronic signs. The location of this information in the introduction would also be more appropriate in General Criteria.

Comment 6.5

There are two locations in Section 1 where state schools are specifically mentioned:

1. The department does not have authority over signs in state school grounds except when the sign causes a danger to road safety.
2. It is hoped the criteria will be adopted in the interests of maintaining pedestrian and road-user safety in and around state schools also.

It seems out of place that state schools warrant special mention given there would be similar safety concerns with non-state schools, as well as other locations. With respect to the phrasing “It is hoped the criteria would be adopted”, this suggest to the reader that adherence to the technical criteria is voluntary, which is not the case.

Comment 6.6 – Brightness, illumination, and luminance

Section 1.1.1 under Brightness, illumination, and luminance states “Signs that do not contain a light sensor must regulate the luminance output based on the time of day”.

Reliance on self-regulation to adjust the brightness and luminance of the advertising device according to the surrounding environment could result in inconsistency and does not account for human error.

Recommendations

Comment 6.4 – General criteria

- Reword to reflect the possibility that electronic signs can also be mounted on top of a pole.
- As also recommended in 6.2, relocate this information to Section 1.1 General Criteria.

Recommendation 6.5

- Reword this section to emphasise the importance of the technical criteria and road safety for all applicants, not just state schools. For example:

It is important the devices not compromise road safety, particularly around schools, through driver distraction due to the operation of the devices. To minimise road safety issues and subsequent intervention by the department where the state-controlled road network is affected, the criteria is provided as a guide to best practice.

- As recommended in 6.2, move the information relating to state schools and road safety from the introduction to Section 1.1 General criteria.

Recommendation 6.6 – Brightness, illumination, and luminance

Make light sensors mandatory in all electronic or digital CMS.

Comments

Comment 6.7 – Extra operating principles for EXISTING DEVICES

“When an existing device is located within a defined restriction zone (refer to Appendix C) and cannot be relocated...” suggests the proactive respective application of the policy.

Comment 6.8 – Extra operating principles for EXISTING DEVICES

The last line in the section states “New devices are not to be erected within restriction zones (refer to Appendix C)”.

This section is about principles for EXISTING devices. Reference is also made to device restriction distances in Section 1.1.2 Driver distraction controls.

Comment 6.9 – Site selection

The wording for the site selection section is inconsistent with wording use in other new technical criteria used in Parts A and B.

Recommendations

Recommendation 6.7 – Extra operating principles for EXISTING DEVICES

Clarify if TMR is going to proactively seek local governments to apply the technical criteria retrospectively. If so, how is this going to be implemented, is going to be statewide, and is TMR planning on instructing local government to take action?

Recommendation 6.8 – Extra operating principles for EXISTING DEVICES

Delete sentence “New devices are not to be erected within restriction zones (refer to Appendix C)”.

Recommendation 6.9 – Site selection

Update the wording to remove the use of acronyms and be consistent with the Site Selection wording used in other technical criteria.

For example:

Site selection

Within the boundaries of state-controlled roads (not Motorways or Motorway Standard roads)

Community CMS are not permitted within the boundaries of state-controlled roads (not motorways or motorway-standard roads).

Comments

Research

Comment 6.10 – Advertising message criteria

Section 1.1.1 states "The CMS should be limited to a maximum of 4 lines of text, each with a maximum of 18 characters per line. The font height (letter size) should be selected to enable quick and easy reading of the message by both motorists and pedestrians. As a guide the minimum font height shall be 150mm for a device in a 60km/h or less speed zone".

Is this message size and font height based on technical standard or readability research that can be referenced to illustrate best practice? It is noted that the VMS technical criteria references research from Forbes (1939) about the maximum amount of copy that can be read. Is this criteria based on similar research?

Recommendations

Within the boundaries of state-controlled motorways (including Motorway Standard roads)

Community CMS are not permitted within the boundaries of state-controlled motorways (including motorways or motorway-standard roads).

Outside the boundaries of, but visible from, state-controlled roads (not Motorways or Motorway Standard roads)

Community CMS are permitted outside the boundaries of, but visible from, state-controlled roads (not motorways or motorway standard roads) if they comply with sections 1.1.

Outside the boundaries of, but visible from, Motorways or Motorway Standard roads

Community CMS are not permitted outside the boundaries of, but visible from, a motorway or motorway-standard roads as the speed limit in these locations is 80km/h or higher.

Recommendation 6.10 – Advertising message criteria

Update the technical review to include research used to develop criteria.

Comments

User-friendly

Comment 6.11 – General

Throughout the technical criteria the information about electronic and static CMS is combined, making a bit confusing for an applicant to quickly identify relevant information.

Comment 6.12 – Message content

Was Education Queensland consulted about the suggestion to develop a suite of messages for all schools prior to its inclusion in the technical criteria? They may already have guidelines in place.

Education Queensland (and all state, independent, and private schools) may not respond well to TMR telling them what they can write on their message boards, while other community groups are able to develop their own messages. Furthermore, if there is no crash history, road safety issues, or has been no complaints about the existing CMS, it might not reflect favourably on the department.

Comment 6.13 – Brightness, illumination, and luminance

The first paragraph on page four says "The maximum average luminance listed above is the maximum allowed". However, the luminance is listed in the manual rather than in the technical criteria.

Recommendations

Recommendation 6.11 – General

Where possible, categorise information according to the type of CMS device being discussed.

Recommendation 6.12 -- Message content

Consult with Education Queensland about whether a policy exists for content on school CMS and whether inclusion of an instruction about a standard message format suite is necessary.

Consider alternative methods of communicating with all schools, such as, including a reminder about CMS content to schools in any back-to-school road safety communication.

Recommendation 6.13 – Brightness, illumination, and luminance

Update the sentence to read:

The maximum average luminance listed as listed the manual is the maximum allowed.

7. Variable Message Signs

Comments

Consistent with the RAM and existing technical criteria

Comment 7.1 – Introduction

The introduction under Section 1 is not clear and concise, with information added about the permanent TMR VMS devices difficult to understand in the context of advertising devices.

The introduction is also inconsistent with other introductions used in technical criteria in Parts A and B. While it is acknowledged the technical criteria Variable Message Signs already exists in the RAM, updating the introduction to be consistent does not change the intent of the document, nor the approval criteria.

Comment 7.2 – General criteria

The technical criteria does not stipulate whether the devices are being approved for permanent or temporary installation.

Recommendations

Recommendation 7.1 – Introduction

Review and rewrite the introduction to be clearer and consistent with other new technical criteria. For example:

The following technical criteria relates to electronically controlled variable message signs (VMS) for roadside advertising. Because electronic displays are conspicuous by design and have the greatest potential to distract motorists, the objective is to limit this potential.

This technical criteria is not intended to apply to VMS used by road authorities for traffic management, which are regulated by Volume 1, Part 10 of Transport and Main Roads' *Traffic and Road Use Management Manual (TRUM)*.

VMS located at bus stops or similar places where messages are directed at, and intended for, pedestrians (not motorists) are excluded.

Refer to Section 10 for a definition of VMS.

The following criteria replace, or are in addition to, the general criteria specified in Section 2 of this manual. Where duplicating or conflicting information, the specific permission criteria in this section override.

Recommendation 7.2 – General criteria

The technical criteria needs to clarify whether these devices are permanent or temporary or both.

Comments

Comment 7.3

The General Criteria section does not specify whether devices are restricted to advertising businesses and products at the subject site only, that is, is third-party advertising allowed.

Comment 7.4 – Site selection

Section 1.1.2.3 states "VMS are permitted when they are located outside the boundaries of, but visible from, a state-controlled road (not Motorways and Motorway Standard roads) if they meet the criteria in section 1.1. Figures C5B and C5C in Appendix C apply."

Figure C5C applies to roads 80km/h and above, therefore, does not apply.

Human behaviour

Comment 7.5 – Text only

There is potential that a device could have a greater distraction impact than an electronic billboard as the dwell time is reduced from 10 seconds (Table 3.3 RAM) to 2.5 to 3.5 seconds (Section 1.1.1 Text Only).

Comment 7.6 – Text only

Further to Comment 7.5, there is potential for multiple VMS to be installed at regularly spacings (such as through long commercial precincts - longitudinal separation shown in Figure C5B, RAM Appendix C). Given the short 2.5 to 3.5 seconds dwell times specified, has any consideration been given to cumulative effect on driver distraction?

Recommendations

Recommendation 7.3

Update the technical criteria to specify whether third-party advertising is allowed or if it is restricted to on-premise advertising.

Recommendation 7.4 – Site selection

Remove reference to Figure C5C.

Recommendation 7.5 – Text only

Confirm there is sufficient evidence that the dwell time of 2.5 to 3.5 seconds for Text Only will not have increased distraction potential.

Recommendation 7.6 – Text only

Consider the accumulative effect of multiple signs with sequential message on driver distraction when finalising technical criteria.

Comments

Comment 7.7 – Text only

Sequential messaging is permitted for VMS text-only message, but not for electronic billboards (Section 3.6.1.1 RAM). How is sequential messaging on VMS less distracting than electronic billboard?

Research

Comment 7.8

The reference from Forbes relates to the maximum amount of copy that can be read without distraction, yet it is positioned after information about where VMS can be installed.

User-friendly

Comment 7.9

The terms 'should' and 'not recommended' used throughout are not definitive, for example:

- Methods of display changes are ... **not recommended**
- Sequential message sets are **not recommended**
- Time taken for consecutive displays to change **should** be within 0.1 seconds.

This type of wording is noncommittal and is open to interpretation and likely to result in inconsistencies with approval and practices.

Recommendations

Comment 7.7 – Text only

Similar to Recommendation 7.6, confirm there is sufficient evidence that sequential messaging on VMS is not a distraction to motorists.

Recommendation 7.8

Relocate the Forbes information to the section in "Text only" about the recommended message length being three to six familiar words. For example:

Where a display is part of a sequential message set, the display duration should be between 2.5 to 3.5 seconds for a corresponding message length of three to six familiar words. While travelling, drivers must glance from the road to read a sign, then glance back to the road. Forbes (1939) states that during this glance, the maximum amount of copy which can be read by the ordinary person is three to four familiar words (excluding prepositions such as "to", "for" or "at").

Recommendation 7.9

Where possible, strengthen the wording and make it more definitive so there is less room for interpretation.

8. Phone booth advertising

Comments

Consistent with the RAM and existing technical criteria

Comment 8.1 – Introduction

The introduction does not follow the same structure as that used for the other technical criteria in Part B and those in Part A.

Comment 8.2

Section 1 says “Additional phone booths shall not be constructed for the purposes of advertising”. How does TMR propose that this will be determined and managed?

Comment 8.3 – General and physical characteristics

In Section 1.1 “Advertising copy/content on phone booths should be directed at pedestrians, not motorists” is contradicted by “A maximum of one advertising device (face) is permitted to be attached to, or form part of, a phone booth, and visible to motorists” in Section 1.1.1.

Recommendations

Recommendation 8.1 – Introduction

Review and rewrite the introduction to make it consistent with the introductions of the technical criteria and those in Part A. For example:

The section outlines site selection, physical characteristics, and other guidance criteria for advertising devices attached to phone booths.

Refer to Section 10 for a definition of phone booth advertising.

The following criteria replace, or are in addition to, the general criteria specified in Section 2 of this manual. Where duplicating or conflicting information, the specific permission criteria in this section override.

Recommendation 8.2

Ensure TMR has a process in place for determining and managing the process of requests for phone booths that include considering whether the applicant is seeking approval solely for the purpose of advertising.

Recommendation 8.3 – General and physical characteristics

Where applicable, update the technical criteria to remove contradictions about allowing signs to be visible to traffic.

Comments

If the intention of the technical criteria is for advertising to not face traffic, only permit signs to be installed parallel to traffic lane to minimise view and distraction to passing traffic.

Comment 8.4 – Location criteria

Move the following bullet points from Section 1.1.2 Location criteria to Section 1.1 General:

- Non-rotating, static illuminated advertising devices shall only be permitted on phone booths located in built-up areas with speed environments of 80 km/h or lower.
- Electronic advertising devices shall only be permitted on booths located in built-up areas, with speed environments lower than 80km/h.

Research

Comment 9.5

No research has been cited. With the onus on TMR to provide evidence-based guidelines to regulate roadside advertising, the source of any guidelines, standards, and research should be cited to substantiate statements made and criteria used.

Recommendations

Recommendation 8.4 – Location criteria

Move the text from Section 1.1.2 Location criteria to Section 1.1 General.

Recommendation 9.5

Update the technical review to include research used, particularly for the development of criteria and restrictions.

Existing research about the distraction potential of street-level advertisements on the driving task would apply to phone booth advertisements.

9. Remote Piloted Aircraft (RPA)

Comments

Consistent with the RAM and existing technical criteria

Comment 9.1 – Introduction

The sentence about department's use of RPA is not relevant in the introduction as the department is not using RPAs for advertising activities. Furthermore, the opening sentence addresses "third-party use".

Comment 9.2 – Site selection

The wording for the site selection section is inconsistent with wording use in other new technical criteria used in Parts A and B.

Recommendations

Recommendation 9.1 – Introduction

Remove sentence the following sentence from the introductory paragraph:

This section does not relate to the department's use of RPAs for activities on SCRs including (but not limited to); bridge and asset inspection, aerial surveys, crash investigations and construction progress photography.

Recommendation 9.2 – Site selection

Update the wording to remove the use of acronyms and be consistent with the Site Selection wording used in other technical criteria.

For example:

Site selection

Within the boundaries of state-controlled roads (not Motorways or Motorway Standard roads)

RPAs are not permitted within the boundaries of state-controlled roads (not motorways or motorway-standard roads).

Within the boundaries of state-controlled motorways (including Motorway Standard roads)

RPAs are not permitted within the boundaries of state-controlled motorways (including motorways or motorway-standard roads).

Comments

Road safety and traffic efficiency

Comment 9.3 – Site selection

In Section 1.1 General Criteria, the technical criteria provides arguments based on road safety and distraction about why RPAs should not be used on state-controlled roads for the purpose of advertising. This is supported in Section 1.1.1.1 and Section 1.1.1.2.

However, Sections 1.1.1.3 and Sections 1.1.1.4 only discourage the use of RPAs outside the boundaries of, but visible from, state-controlled roads. Despite the repeated concerns about the road safety implications of RPAs, no explanation is provided about why TMR simply does not prohibit these devices from being used when visible from any state-controlled road.

Research

Comment 9.4 – General criteria

The General Criteria section provides an explanation about why RPAS are not allowed to advertise on state-controlled roads. While the distraction/restriction areas in Appendix C are referenced for the second bullet point, no other research or evidence is quoted to substantiate the comments made.

A search of available literature pertaining to “remotely piloted aircraft”, “unmanned aerial vehicles” and “driver distraction” did locate research that could validate suggestions that RPAs moving in close proximity to the roadway are hazardous and can cause a distraction to drivers.

Recommendations

Recommendation 9.3 – Site selection

Consider prohibiting use of RPAs for the use of advertising within visibility of a state-controlled road or offer an explanation in the technical criteria why leniency is allowed.

Recommendation 9.4 – General criteria

Update the technical review to include research used to prohibit use of RPAs on the state-controlled road network.

Comments

With the onus on TMR to provide evidence-based guidelines to regulate roadside advertising, the source of any guidelines, standards, and research should be cited to substantiate statements made and criteria used. Without the research used to draft this critical review being cited, it is not possible to identify any gaps in the research or confidently value add.

Recommendations

Released under RTI - DTMR

10. Criteria to manage new types of advertising devices

Comments

Comment 10.1 – TMR assessment

Section 1.1 about TMR assessment raises a number of questions about areas that are not adequately explained to people seeking interim approval. These include:

- What is criteria for interim approval?
 - Approval duration
 - What happens if the assessment results in approval being denied
- What is the timeframe for new standards being developed?
- How are multiple applications prioritised?

Comment 10.2 – TMR assessment

The assessment process mentions that the Corridor Policy team may undertake a literature search and review studies to determine if the device is used elsewhere. What happens in the event that no existing technical or research material is available. Does this mean the department will undertake evidence-based research and, if so, who funds this research and what happens if it is inconclusive?

Comment 10.3 – Physical characteristics

The assessment process does not include reference to:

- consideration about how the proposed devices would be powered
- whether there are emissions
- are there noise amenity issues.

Recommendations

Recommendation 10.1 – TMR assessment

Provide more clarity for the applicant around the approval process and the development of standards, for example, about the length of time taken to grant interim approval and to develop new standards.

Comment 10.2 – TMR assessment

For noting and consideration.

Recommendation 10.3 – Physical characteristics

Update Section 1.1.1 to include reference to how devices would be powered, emissions, noise amenity, etc.

Comments

Comment 10.4 – General

In its current format of bullet points with multiple questions attached to each, the criteria is not very user friendly for an applicant trying to determine what the department considers when assessing a new device.

The criteria provides a lot of information for people to take in without many cues to assist them to understand the different elements they need to consider.

Recommendations

Recommendation 10.4 – General

At a minimum, sections 1.1, 1.1.2, and 1.1.3 need to be reformatted into a list of characteristics that will be assessed and/or developed. For example, a table with a checklist.

A flowchart that guides people through the process is also recommended.

Released under RTI - DTPAR

11. Summary and additional recommendations

11.1 Summary

There were four common issues identified throughout the critical review, those being:

- writing standard
- definitions
- research.

Writing standard

Similar to the feedback in critical review of Part A, the standard of writing of each technical criteria needs improving when considering its readability, user-friendliness, format, grammar, and overall presentation. As roadside advertising can be a complex and sensitive issue to manage, it is essential each technical criteria is clear, concise and consistent and can be easily comprehended by a range of stakeholders with varying understanding of the subject matter.

Another review and refinement of the technical criteria after they have been updated would assist to minimise confusion, misunderstanding, and inconsistencies with applications and approvals, and maintain general credibility of the RAM.

Definitions

Updated definitions for Section 10 were not provided the Part B technical criteria. New definitions need to be developed and updated in the manual to coincide with introducing the new criteria.

Research

No new research has been cited in any of the draft technical criteria. As previously stated, as roadside advertising can be a complex and sensitive issue to manage, technical criteria needs to be based on relevant and sound research where available. Ideally, citing research would also assist readers with understanding how and why specific criteria has been identified and set, particularly where advertising devices are being restricted or completely prohibited.

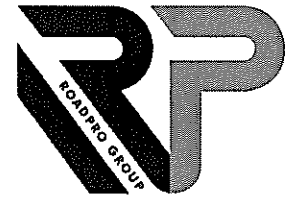
RoadPro Consulting located research about some of the device types (for example, RPAs and bus shelters) and about roadside advertising in general, but without the research used to draft the new technical criteria being cited, it was not possible to identify whether research we located was anything new or worth adding to the draft criteria.

11.2 Additional recommendations

As recommended in Part A, in addition to improving the writing standard for the new criteria and including research citations, other suggested steps that could be taken to assist readers include:

- example photographs or sketches for each device type – multiple photographs where there are a range under each category
- simple flowcharts to guide readers through the criteria, emphasizing key criteria and references to other sections of the manual.

Including illustrations and a flowchart with the new criteria would require similar updating of existing criteria in the roadside advertising manual to maintain consistency.



RoadPro
CONSULTING

Critical review Pylon devices – Technical criteria

Prepared for Department of Transport and Main Roads (Engineering and Technology Branch)

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Traffic Engineering and Road Safety Specialists

www.roadpro.net.au

1. Introduction

This critical review of the Department of Transport and Main Roads' (TMR) draft technical criteria for pylon devices assesses the suitability of the criteria for inclusion in the *Roadside Advertising Manual (RAM) – Technical Volume*. This is RoadPro Consulting's first critical review as part of the project to review 18 new technical criteria, and feedback from TMR on the content, structure, and approach adopted will be used to inform the remaining critical reviews RoadPro Consulting completes.

The key elements this review examines include consistency with the RAM and existing technical criteria, compliance with safety and efficiency criteria, soundness of research, and user-friendly presentation. Comments and recommendations have been listed for consideration, with key findings identified in the summary at the conclusion of the document.

As already discussed with the Project Manager, the depth and complexity of the critical review has been restricted somewhat because the draft technical criteria does not clearly define the advertising device and its approved location. Upon TMR's re-examination of the technical criteria, confirmation about the location of devices, and an update of the technical criteria, another critical review may be warranted.

2. Comments

Comments

Consistent with the RAM and existing technical criteria

Comment 2.1 – Definition

The draft technical criteria defines a pylon device as “generally a free standing advertising device in the form of a tall, narrow, rectangular device, but may also be in a similar layout incorporated onto the side of a building outside the road corridor”.

- The proposed definition of a pylon device is inconsistent with, and less definitive than, the definition in Table 10.1 of the RAM Technical Volume (p. 85), which defines a pylon sign as a “free standing advertising device in the form of a sign supported on a single column a minimum of 5m above the surrounding ground level”.
- The use of the word “generally” suggests the definition is open to interpretation, with it suggesting its application may be variable.
- The definition may also lead the reader to believe that a pylon sign may or may not be freestanding and may or may not be in the road reserve.

The definition will need to be better defined if the document is to be used as an instrument of contract law, agreement, or dispute resolution.

Recommendations

Recommendation 2.1 - Definition

- It is recommended that clear parameters around the definition of a pylon device are developed and then written in clear language that is not open to interpretation or argument. This is critical to maintain the consistent application of the manual and limit the risk of misinterpretation and/or exploitation of the manual allowing a device to be installed that does not comply with the department’s intent.
- Where a review of the definition concludes that a device fixed to the side of a building shall not be defined as a pylon sign (that is, a device that only advertises businesses located at that site and not third-party advertising), it is recommended separate criteria is developed to clearly define permitted use of such mounted, non-freestanding devices. Consider creating a separate standard for the same kind of sign fixed to a building or consider the need for amendment to Section 7 On-premise of RAM.

Comments

Comment 2.2 - Location

References to the permitted location of pylon signs are contradictory and unclear.

- Section 1.2 (p. 1) states: "Where possible, pylon devices should be erected within the property of the business that it is identifying". The phrase "where possible" implies devices can be installed away from the subject site.
- The document then states "Pylon signs are not to be used to provide advance notification of a business or product, or for a business located on a side road". This statement appears to contradict the previous use of "where possible".
- Section 1.3.1.2.2 (p. 3) states that pylon devices are "usually located in close proximity to, and slightly in advance of, the entrance to the business".

If the purpose of a pylon device is to identify businesses located on the same site the device is installed at, then any interpretation about the remote use of such devices should be removed.

Recommendations

Recommendation 2.2 - Location

Review and clarify the permitted location of a pylon device. Where the review concludes that pylon devices cannot be installed in advance or away from the site of the business it is advertising, all reference and criteria relating to the remote placement of devices (for example, "inside the road reserve") should be removed. This is critical to maintain the consistent application of the manual and limit the risk of misinterpretation and/or exploitation of the manual allowing a device to be installed in a manner that does not comply with the department's intent.

Comments

Comment 2.3 – Local government planning schemes

- Section 1.3.1.1 states that “the dimensions of a pylon sign shall generally conform to the requirements of the particular local government’s planning scheme”. This statement should be more definitive and provide advice on whether the dimensions in this section take precedence over the Local Government Authority (LGA) planning scheme.
- Where there is a need to mandate dimensions in this section (for example, to be used in the absence of a LGA planning scheme), further detailed clarification and information outlining the shape, maximum square metre size, minimum clearance height, and overall maximum height of devices is essential. The details provided in the draft document (that is, rectangular shape, maximum 40m² sign face area, and 2.5m vertical clearance height) do not appear to reflect the general application of pylon signs currently visible from the state-controlled road network.
- The 2.5m vertical clearance height (refer to Section 1.3.1.1, p. 2) contradicts the 5m used in the current definition.

Recommendations

Recommendation 2.3 – Local Government planning schemes

- Use more concise language and give a clear indication of what the requirements would be if no LGA planning scheme was in place.
- Provide a clear indication of what criteria takes precedence or when local government agencies should be referring applications to TMR for consideration. For example, the NSW Government’s Transport Corridor Government’s Transport Corridor Outdoor Advertising and Signage Guidelines, published by the Department of Planning and Environment (<http://www.planning.nsw.gov.au/Policy-and-Legislation/~media/59AD1BE9ABA4448191791490BF67A70D.ashx>) provide criteria for when local government agencies should refer applications to for freestanding signs to the department for concurrence assessment.

Comments

Comment 2.4 - Lateral

Section 1.3.1.2.1 appears to be consistent with the general requirements of the RAM and the guidance in *Austrroads Guide to Road Design*. However, the language used softens the applicability of the clear zone concept by stating that these requirements must be “considered”, which does not necessarily mandate compliance.

More commentary around the applicability of the clear zone requirements depending on whether the pylon sign is located within the road reserve or outside of the road reserve is required to provide clarity.

Comment 2.5 – Electronic panels

Section 1.3.1.2.1 makes reference to the use of electronic panels within pylon signs. It is difficult to interpret how restrictions apply to devices located on the right side of the road. In particular the use of “may be considered appropriate where optimal viewing angles.....are achievable”. The limited explanation does not clarify the intended restriction.

Recommendations

Recommendation 2.4 - Lateral

- Use language that is definitive and clear, and does not allow for interpretation.
- Consider referring the specification of clear zone requirements to Section 2.1.2.1 Lateral placement of the Technical Volume that states:
Except where road reserves are very narrow, lateral placement criteria will normally only apply to advertising devices that are within the boundaries of state-controlled roads. The application of the ‘clear zone’ concept is intended to minimise the risk of collision of an errant vehicle with an advertising device. Refer to Appendix B for advertising device clear zone criteria

Recommendation 2.5 – Electronic panels

Use more concise language and give a clear indication of why and what the requirements for placement on the left and right side of the road are.

Comments

Comment 2.6 – Replication of information

Information from the general criteria and other technical criteria in the Technical Volume has been repeated in the pylon device technical criteria, creating a larger and more cumbersome reference document than required, and also resulting in reference to sections that are not applicable. For example, Section 1.7 Electronic panels on pylon devices includes large sections that are identical to Section 3.6 Electronic billboards.

Road safety and traffic efficiency

Comment 2.7

Many high-volume roads, particularly motorways, will have variable speed limits (VSL), ramp metering, or Lane Use Management Systems (LUMS) installed to prolong the capacity of the network or to manage safety at a critical point. These installations require a significant amount of signing and roadside furniture to achieve their operational goals. It is possible that by approving permanent advertising outside of current exclusion zones, TMR may be reducing their ability to locate critical traffic management devices in the future retrofit of a managed motorway, VSL, ramp metering, or LUMS. Section 1.3.3 stipulates “the proposed device does not interfere with any public utilities, and does not prevent future public utilities from being installed”; however, the same consideration is not necessarily given to roadside furniture for managing the future operation of the road itself.

Recommendations

Recommendation 2.6 – Replication of information

Identify locations where generic information can be removed and the reader can be referred to other locations in the Technical Volume.

Recommendation 2.7

Where a review clarifying the permitted location of pylon signs, as suggested in Recommendation 2.2, concludes that they can be installed remote from a site, consideration should be given to making provisions to refuse the installation of advertising devices at these locations based on the need to locate critical traffic management infrastructure in the future. This may be supported by strategic planning for road corridors or by means of an advertising management plan or similar.

Comments

Human behaviour

Comment 2.8 – Distraction potential

Section 1.7 outlines the use of electronic panels within pylon signs.

- To fully appreciate the distraction potential such electronic devices pose in this instance, more detail is required about the maximum number and size of panels.
- Clarification on whether pylon signs can be installed away from the business site being advertised—for example, located nearby or in advance within the road reserve—is required in order to further assess how the distraction potential may vary.

Research

Comment 2.9

No research has been cited in the draft document.

Comment 2.10

A search for available literature pertaining to “pylon devices”, “pylon signs”, and “on-premise signs” was undertaken to locate research about pylon devices, guidelines around their installation, and their impact on road safety. A majority of results returned related to their viability as a means to increase business performance, with a few results relating to motorist and traffic safety of on-premise signs in the United States. The relevance of this research is unclear at this point until confirmation about the permitted location of the pylon devices is received.

Recommendations

Recommendation 2.8 – Distraction potential

- As recommended in 2.2, clarify whether a pylon sign can be installed away from the business site being advertised.
- Confirm the maximum number and size of electronic panels that can be installed within a pylon device.

Recommendation 2.9

With the onus on TMR to provide evidence-based guidelines to regulate roadside advertising, the source of any guidelines, standards, and research should be cited to substantiate statements made and criteria used.

Comments

User-friendly

Comment 2.11 – Overall

- The formatting and general presentation needs to be improved and should be consistent with the other technical criteria in the RAM.
- The text and language is not always clear and concise and needs to be more reader friendly, with plain English principles adopted where possible.

Comment 2.12 – User-friendly criteria

There are only a few specific mentions of petrol stations signs, with the remainder of the technical criteria mentioning and citing examples relating to pylon devices. A stakeholder wanting to make an application for a petrol pricing sign may find the pylon device technical criteria difficult to navigate.

Furthermore, traditionally shopping centre are high-mounted, pylon-type signs, whereas a service station sign is more commonly a vertical rectangle that has limited or not vertical clearance so this needs to be clearly defined or reconsider separating. For example, it may be clearer to specify the different design parameters for service station electronic panels from shopping centre electronic panels if they are in separate standards.

Recommendations

Comment 2.11 – Overall

Review and rewrite the technical criteria before releasing to an external audience. Refer to TMR's *Writing Style Manual* for guidance on plain English, consistency, and style rules.

Comment 2.12 – User-friendly criteria

Consider separating petrol station signs into its own technical criteria or ensuring it is provided with a separate section in the pylon device technical criteria so a person looking for information on that topic can find it easily.

3. Summary

The key recommendations from the critical review are listed below.

Location

Confirmation about the location of the advertising device—whether it can or cannot be installed away from site—is essential because it impacts the amount of information that is provided in the technical note.

Definition

The definition of the device, being that it is a freestanding device, must be finalised.

Design parameters

- Design parameters, ie, size, shape, vertical clearance height, maximum overall height.
- Confirm whether design parameters override LGA or whether they are provided only for use where the LGA does not make provisions for those devices in their planning scheme.

4. General comments

The key issues identified during the critical review—unclear scope and definition, inconsistency with existing technical criteria, and repeating generic information or general criteria—could potentially impact technical criteria currently being prepared.

Consideration could be given to the Project Officer preparing an initial outline that shows target content. The reference brief could include the following information:

- Device name: (example, pylon sign)
- Intended use: (example, business name advertising)
- Device characteristics: (example, freestanding, static, non-rotating with provision for small static electronic panels contained within)
- Reference information: (example, research by USA Advertising Association)
- Permitted location: (example, must be located within property boundary of business being advertised)
- Deviation from general permission criteria: (example, longitudinal separation from other large advertising devices increased to 2.5V based on research)

Ideally, once approved by the Project Manager, the reference brief could be used to:

- provide a base point to identify relevant information to be populated in the advertising device technical criteria (while also eliminating non-essential information) and influence how the draft is initially written
- record justification of operational knowledge, case study, or formal research
- identify necessary deviations from general permission criteria
- assess relevance and compliance of completed draft technical standard against TMR business requirements.