

# Pedestrian right of way law

ENTR 611 Research Paper

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### Topic #11

Compare and contrast pedestrian right-of-way laws in NZ and elsewhere. What would be the effects of NZ altering its regulations regarding pedestrian right-of-way to reflect practices elsewhere?

#### Executive Summary and Main Findings

This research report and accompanying presentation contrast pedestrian right of way laws in New Zealand, Australia and the United States and explore the implications to NZ if its pedestrian right of way laws were altered to those of the two comparison countries.

The rules defining priority of movement between pedestrians and drivers in New Zealand are found in the Land Transport (Road User) Rule 2004 and more heavily favour motorists in NZ than they do in Australia and the US. Australian give-way rules are defined in the Australian Road Code and provide greater pedestrian priority than NZ's but are otherwise similar. Both countries' rules are proscriptive and only grant priority to pedestrians in a few, well-defined situations.

In the US and much of North America, the legal recognition of the "crosswalk" establishes some form of priority for pedestrians at most intersections and specifically-designated areas. However, a fundamental ambiguity of what constitutes a crosswalk results in very different interpretations and therefore application of these facilities between and within states.

The differences in these legal contexts guide the design of the roadway; particularly at the nexus of pedestrian and vehicle conflict. This is especially apparent at unsignalised intersections where the presence and absence of legally-warranted road markings is used to indicate relative priority. Changing NZ law to align with Australian and / or US legal contexts would require a good deal of political will and certainty from NZTA, Ministry of Transport and Parliament that the changes would result in an improved roading environment (safer and more 'efficient').

The Australian model would be more feasible and palatable. It would require some changes to the Land Transport road rules and an extensive public awareness campaign but few if any physical changes to the roadway. It would probably also result in a reduction in crashes involving pedestrians.

Studies indicate that the greater the amenity provided to pedestrians, the more who will use it. Higher pedestrian traffic also tends to result in a greater number of overall crashes but fewer crashes per capita / user. The situations in which pedestrians would receive priority under the new rules constitute a very low percentage of overall crashes in both countries. Therefore, a rule change would likely result in higher pedestrian traffic and lower crash rates per capita / user.

Adopting the US / North American model would require a more thorough overhaul of the legal relationship between motorists and pedestrians as well as revisions to MOTSAM and local authority practice. Its impact on road safety is less certain. Although crosswalks provide a greater amount of pedestrian priority than exist in either Australia or NZ and should in theory see the greatest pedestrian traffic and per capita safety benefits, the concept is interpreted and applied inconsistently. As a result they are often installed across a range of roading contexts where studies show they are likelier to increase crash rates than reduce them.

From a pedestrian's perspective, there are noticeable advantages to crosswalks. If New Zealand were to adopt US / North American crosswalk rules, at a minimum those rules would need to be founded upon a more refined definition of what constitutes a crosswalk. By doing so the Ministry of Transport would need to ensure that they are installed only in those environments where their safety benefits can actually be captured. A simpler alternative is to simply increase the range of installation parameters for pedestrian crossings in New Zealand to include locations such as unsignalised intersections.

## 1. Pedestrian Right of Way Laws in New Zealand

### 1.1 Legal Context

Pedestrian right of way laws in New Zealand are established as a set of “Ordinary Rules” created by the Ministry of Transport acting on the authority of Parliament. The rules that define the legal status of pedestrians and pedestrian facilities within the roading environment are proscriptive and clear. The application of those rules is guided by a combination of New Zealand and Australian design standards with differing local practices warrants procedures.

### 1.2 The Rules

With the Land Transport Management Act 1998<sup>1</sup>, Parliament granted the Minister of Transport the ability to set national road rules and standard practices. The rules governing national standards of road user behaviour and facilities are established in the Land Transport (Road User) Rule 2004<sup>2</sup> and the Land Transport Rule: Traffic Control Devices Rule 2004<sup>3</sup>, respectively (Figure 1). The Land Transport (Road User) Rule establishes the legal responsibilities and relationships between road users. The Traffic Control Devices Rule defines the type of facilities the national road controlling authority is to provide to enable those responsibilities and relationships.

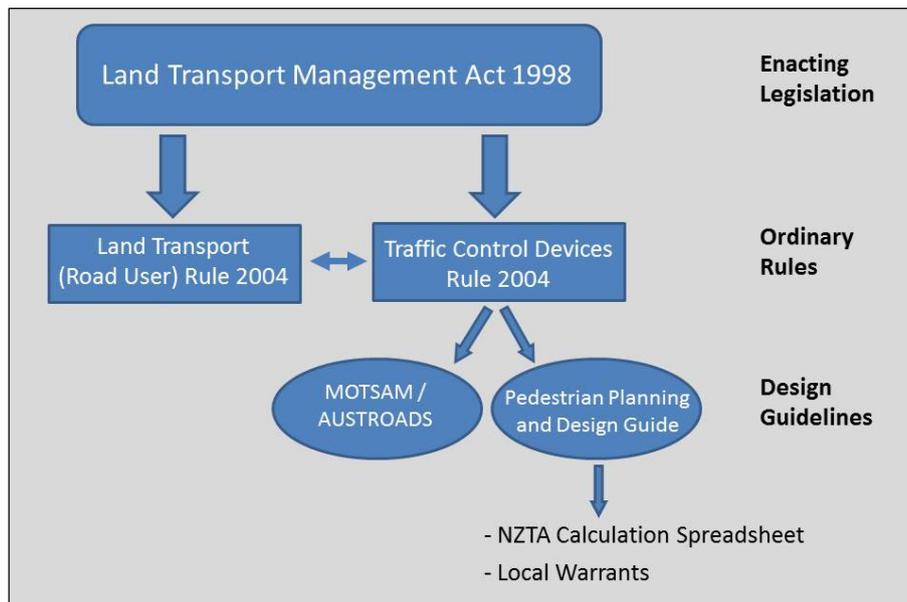


Figure 1 – Chart Path for Pedestrian Facilities in NZ

The Land Transport (Road User) Rules’ provisions for pedestrian right of way in New Zealand are limited but clearly defined. With a few specifically-identified exceptions, motor vehicles have legal priority of movement over pedestrians in almost all contexts of the roading environment. Motorists are only legally required to give way<sup>4</sup> to pedestrians in these contexts:

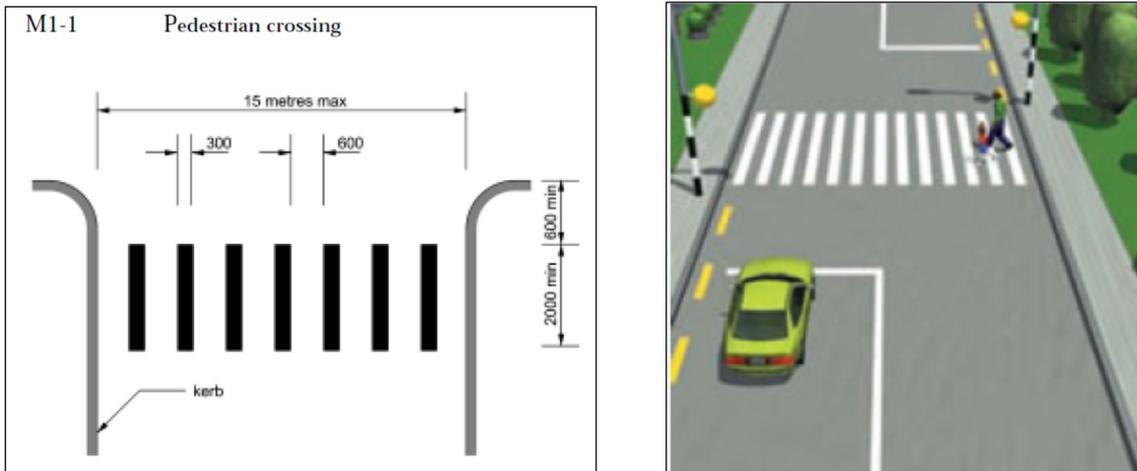
- At specifically-proscribed “pedestrian crossings” (signalised and unsignalised)
- At specifically-proscribed “school crossings”
- At driveway thresholds
- Within “shared space” zones

Apart from these conditions, NZ law does not specifically mention pedestrians within the list of rules governing rights of way for vehicles at intersection approaches and turns. Unlike Australia, for example, which establishes give way rules between vehicles *and* pedestrians, the NZ Ministry of Transport’s rules only specify vehicle operators’ responsibilities in relation to other vehicles.

This omission of pedestrians from other, give-way laws is interpreted as priority for vehicles over pedestrians in virtually all contexts except the four mentioned above.

**1.3 Application of the rules**

The principle location where pedestrian priority is codified is the “pedestrian crossing”. These can be at signalised or unsignalised junctions or mid-block locations. The NZ Road Code<sup>5</sup> defines a pedestrian crossing as “an area of the road that has white stripes marked across it. It is used by pedestrians and people using mobility devices (such as motorised wheelchairs and similar devices and wheeled recreational vehicles (such as skateboards and foot-propelled scooters).”



**Figure 2 – “Pedestrian Crossing”:** Schedule 2 specification from the NZ LTR Traffic Control Devices Rule (left) and image from the NZ Road Code (right)

Unsignalised pedestrian crossings, such as those shown in Figure 2, are usually installed away from intersections (mid-block) at locations with relatively high numbers of pedestrians and low vehicle speeds, although the warrants for the installation of pedestrian crossings vary<sup>6</sup>.



**Figure 3 – “Courtesy Crossing”:** Images from the NZTA Pedestrian Planning and Design Guide<sup>7</sup>

Specifications for the design of these and other types of roading facilities are further refined in the *Manual of Traffic Signals and Markings (MOTSAM)*<sup>8</sup>, NZTA Pedestrian Planning and Design Guide and Austroads Design Guidelines<sup>9</sup>. However, as the Land Transport (Road User) and Traffic Control Devices rules make clear, unless a crossing is marked to these specifications, it is not a legal pedestrian crossing and right of way is assumed to belong to motorists.

In order to cater to pedestrian mobility in most other circumstances, the Ministry of Transport grants local road controlling authorities the right to install unofficial or “courtesy” crossings at various locations. These can include raised platforms in town centres or mid-block refuges (see Figure 3).

These crossings are common throughout New Zealand, permit greater pedestrian mobility and are also discussed in the design and planning manuals noted above. However, without the authorising status specifically granted to proscribed “pedestrian crossings” in the Ministry’s ordinary rules, they do not endow pedestrians with priority at points of conflict. At such crossings, pedestrians must wait and give way to passing vehicles.

Motor vehicle priority is further reinforced within the design of the roadway itself; particularly at unsignalled intersections where no road space or priority is provided to pedestrians wishing to cross at any approach. Although courtesy crossings often provide suitable, off-road facilities for pedestrians *waiting to cross* at such locations, it is the pedestrian who must wait for a safe gap in vehicle traffic before attempting to cross.

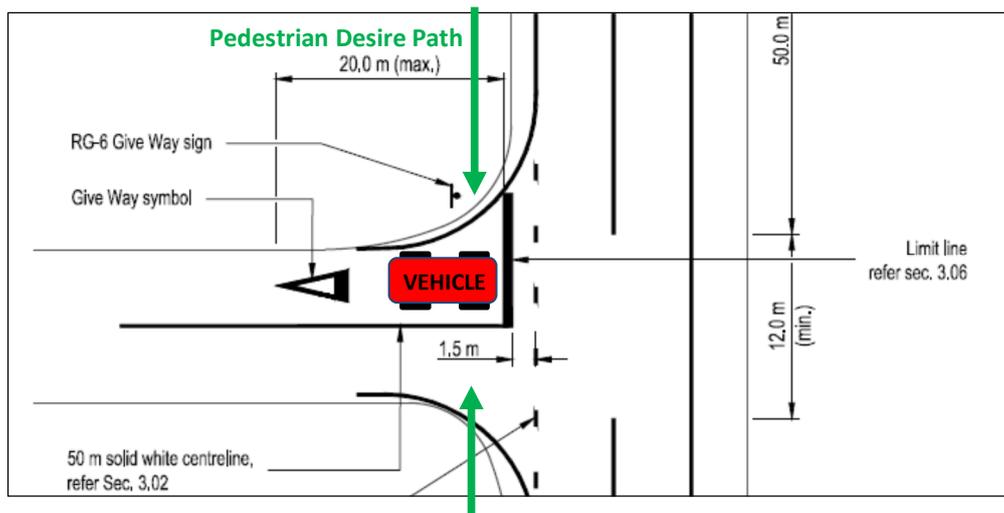


Figure 4 – Extension of the vehicle limit line through pedestrian desire path across minor approach, MOTSAM<sup>10</sup>

This is shown in Figure 4, where MOTSAM guidelines provide a 1.5m limit line offset from the extended plane of the outer travel lane to the front end of a vehicle at the minor approach in a 50k/hr, urban environment. This recognises the fact that vehicles approaching the limit line may overshoot it, but by design it does not recognise the conflicting desire path of pedestrian road users. The limit line is designed to encroach upon the desire path of pedestrians across the road.

## 2. Pedestrian Right of Way Laws in Australia

### 2.1 Legal Context

The Australian Road Rules were first approved in 1999 by the former Australian Transport Council, now the Standing Council on Transport and Infrastructure (SCOTI). The Standing Council was established by the Council of Australian Governments (COAG), an intergovernmental forum of state, territory and federal representatives<sup>11</sup>.

Australia is a federation of states and territories and the rules themselves only apply to the laws of the individual states or territories that have adopted them (all have). State and territorial law takes precedence but since the national rules were introduced these have mostly been revised to align with the new, national rules.

This relationship is shown in Figure 5. Australian state roading rules have been brought into alignment with the national rules adopted in 1999. State engineers and planners utilise Austroads in addition to each state’s Manual of Uniform Traffic Control Devices (MUTCD) for best design practice and guidance.

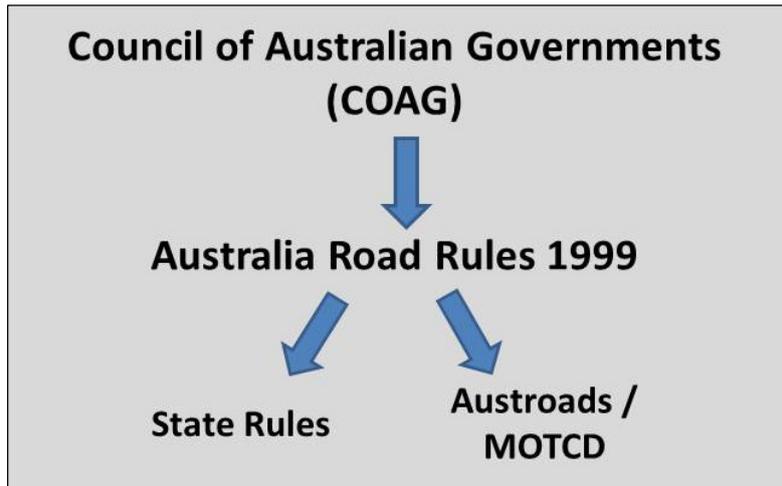


Figure 5 – Chart Path for Pedestrian Facilities in Australia

## 2.2 The Rules

The Australian Road Rules<sup>12</sup> are similar to the New Zealand ones but include greater consideration of pedestrians by establishing a 'give way' relationship with motorists. The rules do not formally create more *right of way* for pedestrians but require motorists to stop and give way to pedestrian movements in a greater number of contexts.

In addition to the four locations for pedestrian priority created by New Zealand road rules (pedestrian crossings, school crossings, driveways, shared spaces), motorists in Australia are required to give way to pedestrians:

- At all left slip lanes (unless signalised);
- When making a U-turn;
- Who are crossing (or just about to cross) the street onto which a turning vehicle is turning (but not the street from which it is turning – see Figure 6)

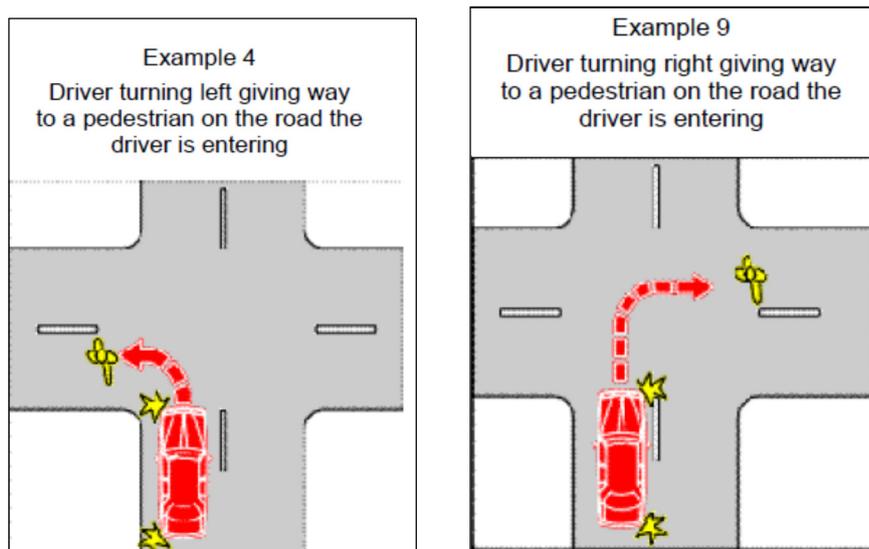


Figure 6 – Clarification of Give-Way rules at 4-approach intersection, Australian Road Rules

This last condition applies equally to left and right-turning vehicles at unsignalised give-way controlled and stop-controlled intersections (Figure 6) and for pedestrians crossing at major or minor approaches.

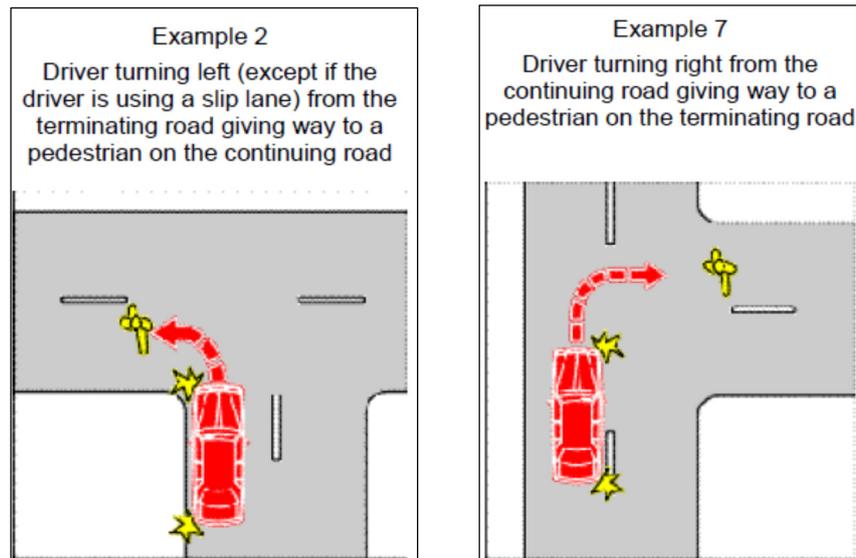


Figure 7 – Clarification of Give-Way rules at a 'T' intersection, Australian Road Rules

Note as per Figure 7, this applies equally to left and right-turning vehicles and at 4 or 3-approach ('T') unsignalled intersections where the vehicle is entering a separate road<sup>13</sup>. This is in direct contrast to the New Zealand rules, where it is solely the pedestrian's responsibility to ensure a suitable gap in on coming vehicles exists before venturing into the roadway.

### 2.3 Application of the rules

Despite these give way considerations for pedestrians, by and large there is little noticeable difference between the design of Australian roadways and New Zealand ones. Despite these pedestrian give-way rules, no dedicated crossing space is normally marked on the roadway itself to establishment of the legal priority of the pedestrian desire path<sup>14</sup>. The Australian Road Code similarly proscribes the design and interpretation of what constitutes a "pedestrian crossing" and local roading authorities provide courtesy crossings with slight design variants across Australia. With identical limit line application at unsignalled intersections, these are designed to reinforce the relative priority of motor vehicle desire paths over pedestrian ones.

In fact, neither New Zealand nor Australian design guidelines provide specifications or examples of pedestrian crossing facilities at unsignalled intersections at all. NZTA and Australian planning and engineering guidelines provide some points of consideration for such facilities, but unlike mid-block crossings (both signalised and unsignalised) and signalised intersection crossings, there are no figures or specifications for reference in the national guidelines pertaining to the design of unsignalled intersection crossing facilities.

### 2.4 Implications of rule change in NZ

The Ministry of Transport could amend the existing Land Transport rules and adopt all or some elements of these give-way rules. The mechanism for this change would be similar to the recent evocation of the former, right-turn, give way rule (which was largely rationalized by highlighting the success of its application in Victoria). An interested party would need to assemble a business case to NZTA that would need to demonstrate the relative safety and / or operational benefits of the change. If approved, NZTA would take the case first to the Ministry of Transport and then to Parliament, who would review and vote upon the proposed changes.<sup>15</sup>

Establishing the Australian give way rules would require few physical changes to the roading corridor and few changes to MOTSAM. Although vehicles would legally be required to cede to pedestrians crossing the road they (the motorists) are entering, there would be no road marking or signage that establishes this priority and therefore nothing to scarify or remark.

The actual road safety impacts of this or similar changes are less clear. The level of analysis undertaken for this assignment did not permit a detailed assessment of crash rate factors and trends but the two most basic questions that an arguing business case would make are:

1. What are the likely Operational Impacts (real and perceived)?

From the perspective of the roading engineers working in local road controlling authorities, these will probably be construed as negative. Giving way delays traffic movement and minimising traffic delays has traditionally been a priority concern for traffic engineers. The perception of these delays is worsened by the fact that they can not be readily quantified; as they would apply to almost every instance of car-pedestrian interaction at every unsignalised intersection in the country. Such uncertainty would warrant the application of the ‘worst case scenario’ as a benchmark against which to comprehend the perceived impacts.

2. What are the likely Road Safety Impacts (real and perceived)?

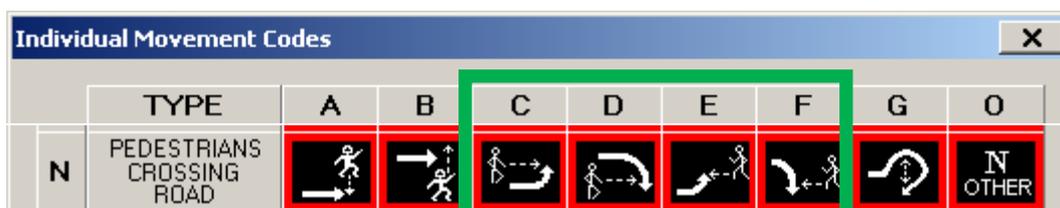
Attempts to answer this question are framed both by objective, mathematical analyses and wholly subjective speculation. In theory one can collect crash data for a comparative safety analysis of the Australian and New Zealand roading environments but it is more difficult to overcome (or ignore) road user perceptions of what constitutes a safe roading environment. This is especially relevant because final sign-off of any changes to the road code is ultimately made by elected officials.

There are difficulties in comparing national statistics such as the overall crash and pedestrian fatality rates from Australia and New Zealand over a sample time period. The 2011 rates in Table 1 show higher overall crash rates in New Zealand but the same rates for pedestrian crashes.

**Table 1 – 2011 Traffic Fatalities per 100,000 pop. (NSW Transport)<sup>16</sup>**

	Total	Pedestrians
New Zealand	6.4	0.8
Australia	5.7	0.8

A basic problem with trying to compare more refined crash data and isolate relevant trends or factors is that New Zealand and Australia collect different types of data for their crash statistics. For example, the New Zealand Crash Assessment System (CAS) records data on the location, direction of movement and relative positioning of both pedestrians and vehicles involved in crashes (see Figure 8). Australian authorities do not collect this same type of data.



**Figure 8 – CAS Movement Code type ‘N’ showing ‘Pedestrian Crossing Road’ – type crashes**

The CAS-defined, movement type ‘N’ codes crashes involving pedestrians crossing the road (Figure 8). The column codes ‘C’, ‘D’, ‘E’ and ‘F’ correspond to the direction of movement of the pedestrian in relation to the vehicle. Together they describe the following scenarios in which a pedestrian is struck while approaching a driver from the right or left while the vehicle is turning either right or left.

These crash types constituted only 6% of all pedestrian traffic deaths in 2011. The greatest percentage (60%) were the result of the 'NA' and 'NB' crashes where pedestrians were struck by cars heading straight with the pedestrian approaching the vehicle from either the driver's right or left.<sup>17</sup>

Isolating the differences in crash types 'NC' – 'NF' across New Zealand and Australia would be an ideal place to start a comparative safety analysis, as these are the same pedestrian movements that receive give-way priority under the Australian rules. If these crash types were significantly different after accounting for other factors (speed, volume, crossing length, etc.), it would form the basis of an informed opinion on the safety merits of a road rule change.

Unfortunately, no such direct comparison is possible with the pedestrian give-way rules because Australian Police and road controlling authorities do not record the direction and movement of pedestrians in relation vehicles in their crash data collection. The safety impacts of these rules can therefore not be identified without complex, multi-linear regression analysis to isolate likely factors relating to pedestrian crashes at Australian intersections.

Tim Hughes, Senior Road Safety Engineer at NZTA, notes that give way rules will likely come up for reassessment during the next round of Road Rule changes in 2014. However, given the inherent differences between the New Zealand and Australian crash data, no comparative safety analyses will be conducted. The argument will likely come down to one of principle and the need to provide greater priority for pedestrians within the road user hierarchy.<sup>18</sup>

Tim's personal view is that introducing Australian give way rules to New Zealand roads will result in minor but negative safety outcomes for pedestrians; mostly over confusion between motorists and pedestrians over who actually has priority in certain roading contexts. While there is evidence that incorrect assumptions over road user priority contribute to increased collisions<sup>19</sup>, there is countering evidence showing increased patronage levels and lowered crash rates for pedestrians in higher quality crossing amenities<sup>20</sup>.

If New Zealand were to adopt the Australian rules with no changes, the long term results on road safety outcomes are likely to be limited but mixed. Data from the US indicates that the benefits to pedestrians will likely be greater in urbanised and low-speed areas where drivers are already more used to accommodating pedestrian movements<sup>21</sup>. Higher crash outcomes are likelier in rural areas or where there is a high volume of vehicles relative to pedestrians.

Making this argument in light of the subjective nature of road user perceptions of safety is difficult; partially because Transport Engineers are just as inclined to form opinions based on their subjective, 'common sense' understanding of a road rule change than any other voting layperson. Despite any objective crash risk analysis that can be produced, the Ministry of Transport will ultimately need to overcome common perceptions of what constitutes a safe roading environment to enact any such change.

### **3. Pedestrian Right of Way Laws in the United States**

#### **3.1 Legal Context**

In theory, right of way laws in the US provide more priority for pedestrians than both NZ and Australia. In practice, however, the very different legal context makes it difficult to compare the real advantages and disadvantages of these laws. As shown in Figure 9, the legal relationship is more devolved from central government in the US than in New Zealand and Australia. State laws take guidance from Federal rules and engineering standards but also inform the design and application of roading facilities at the local level.

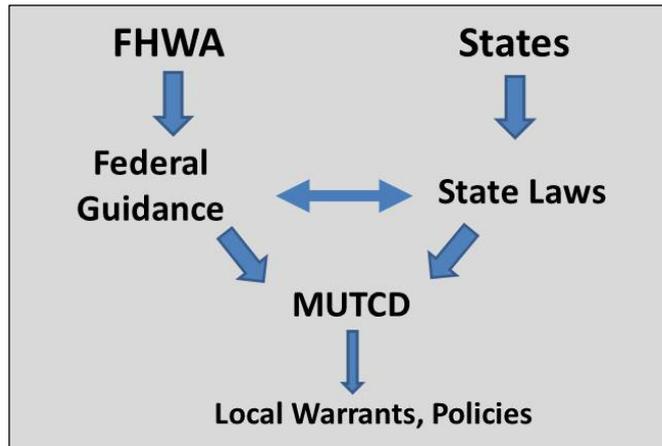


Figure 9 – Chart Path for Pedestrian Facilities in the US

### 3.2 The Rules

In contrast to the limited and proscriptive New Zealand and Australian rules, US law provides far greater pedestrian priority. Unfortunately, this legal priority is based on an ambiguously-defined concept of what constitutes a “crosswalk”. It is very broadly defined and inconsistently applied both among and within states.

The lack of a uniformly-recognised definition of a crosswalk has created an array of different engineering standards, policies and systems of warrants for their installation and operation. These can vary as much between states as within them and have resulted in the establishment of various warrants systems governing when and where crosswalks can be installed.

According to the *2000 Uniform Vehicle Code and Model Traffic Ordinance (Uniform Vehicle Code)*<sup>22</sup>, a crosswalk is defined as:

1. That part of a roadway at an intersection included within the connections of the lateral lines of the sidewalks on opposite sides of the highway measured from the curbs, or in the absence of curbs, from the edges of the traversable roadway; and in the absence of a sidewalk on one side of the roadway, the part of a roadway included within the extension of the lateral lines of the existing sidewalk at right angles to the centerline.
2. Any portion of a roadway at an intersection or elsewhere distinctly indicated for pedestrian crossing by lines or other markings on the surface.



Figure 10 – Two US examples of “crosswalk”: marked (left) and unmarked (right)

A crosswalk can therefore either refer to the extended plane of pedestrian desire path across any road or where the road controlling authority has specifically installed recognised markings (see Figure 10).

The range of potential roading environments subsumed within this joint category is very large. In response, state and local road controlling authorities choose to selectively interpret what a “crosswalk” is and limit where they can be installed through the application of warrants.

The US Manual on Uniform Traffic Control Devices (MUTCD) simply notes that crosswalks should be marked wherever there are significant conflicts between vehicles and pedestrians. Establishing the thresholds of “significant conflicts” is left to state and local authorities who are free to utilise any system of warrants that fit local conditions.

The US system of crosswalk warrants is dependent on traditional engineering factors such as vehicle speeds, vehicle volumes and pedestrian volumes and too little on the suitability of the roading context to safely accommodate a pedestrian priority zone.<sup>23</sup> Consequently a significant number of crosswalks are installed in locations with relatively high crash risk probabilities merely because they meet the volume warrants.

### 3.3 Application of the rules

The legal recognition of what constitutes a crosswalk may differ across the country but their impact on the roading environment is apparent in road marking design. This is particularly true at unsignalled intersections. Unlike courtesy crossings in Australia and New Zealand, North American / US crosswalks provide a legally-recognised zone of priority for the pedestrian desire path.



Figure 11 – Examples of crosswalk limit lines in Toronto (left) and New York (right) – Google Street View

Similar to the Australian give way rules, pedestrians have priority over motorists entering the road the pedestrian is crossing. However, unlike the Australian rules, crosswalks also give priority to pedestrians crossing the road that the motorist is travelling on as well. This priority is shown by the road markings at the minor approach to 3-way (‘T’) or 4-way unsignalled intersections (Figure 11). The vehicle limit line is placed at an offset behind the crosswalk rather than the perpendicular travel lane edge line.

If no pedestrians are in a crosswalk a motorist is approaching, the motorist will creep across the crosswalk and stop roughly at the same limit line as formally provided by New Zealand and Australian road authorities – 1.5m back from the travel lane edge line. If there are pedestrians in or about to enter the crosswalk, the motorist stops at or near the limit line provided and waits for the pedestrians to cross.

### 3.4 Implications of rule change in NZ

Similar to the Australian rule, the differences in the collection of crash data in the US would make it difficult to simply and directly assess the relative risk of introducing crosswalks to New Zealand roads. There is also no ‘before and after’ study area where the rules for pedestrian priority have suddenly swayed so heavily from favouring the motorist to the pedestrian and thus no possibility of studying the direct effects of such a change.

A change to the US / North American rules would introduce pedestrian priority through the legal establishment of intersection crosswalks across New Zealand. Gauging the impacts and therefore likelihood of introducing such a change again comes down to the same two questions:

1. What are the likely Operational Impacts (real and perceived)?

These real and perceived network operation impacts are likely to be greater than the Australian ones as the range of pedestrian priority with crosswalks is vastly increased. Vehicles will need to stop not only when turning onto another street but when turning off one as well.

2. What are the likely Road Safety Impacts (real and perceived)?

Although crash rates are higher in the US than in New Zealand and Australia<sup>24</sup>, there is insufficient analysis to determine whether this is primarily attributable to pedestrian priority rules. Although there is a body of evidence to suggest that marked crosswalks are more dangerous than unmarked ones, many of these studies have not taken specific aspects of the road corridor into consideration.

A 2001 report from the US Federal Highway Administration (FHWA) studied a number of crosswalk safety analyses and noted that the most significant factors in increased crash rates at marked crosswalk locations were the length of the crosswalk and the volume of vehicles on the road.<sup>25</sup> Marked crosswalk crash rates increase relative to unmarked ones across roads 4 lanes (2 lanes in each direction) or wider. However, there are no significant differences in crash rates between marked and unmarked crosswalks across 2-lane roadways.

Crosswalks provide both benefits and drawbacks. It is likely that the US' higher pedestrian crash rate is at least partially attributable to the warranted installation of crosswalks at high-volume, high-speed and longer crossings. On the other hand, given observed increases in pedestrian activity and safety benefits from the installation of pedestrian priority facilities, they can also contribute to safer roading environments.<sup>26</sup> In light of these findings it is likely that there are safety benefits and advantages to installing crosswalks in some contexts (i.e., shorter crossings, mixed volumes of pedestrians and vehicles) and disbenefits in others (i.e., wider crossings, greater vehicle speed corridors, etc.).

If New Zealand were to suddenly adopt the legal authority of crosswalks with no changes from the US model, NZTA would be equally bound to establish warrants for their installation at most intersections. As in the US, this would result in their installation at some unsuitable locations and the impact would likely be an overall increase in crash rates similar to the US' – at least in the short term. One probably, significant difference would at least see a single set of warrants across the country.<sup>27</sup>

The establishment of the crosswalk concept in New Zealand would also require significant alterations to roadway markings across the country and the rewriting of MOTSAM guidelines. Ideally NZTA would opt to provide a single, unambiguous definition of a crosswalk before undertaking the change.

A safer, simpler and cheaper alternative would be a partial adoption of crosswalks to a more limited set of roading contexts. This could be accomplished by a careful and limited expansion of parameters for installing "pedestrian crossings". This would require no change to the Road Code but some modification of MOTSAM for design of road markings at unsignalised intersections.

Rather than establishing pedestrian priority primarily at mid-block locations, crossings would also be installed at select intersection crossings as well. The range of these locations could be limited and informed by factors that contributed to the overall safety of outcomes for all pedestrian users. For example, they could be automatically installed across all minor, unsignalised intersection approaches unless the crossing length, vehicle volumes or some other factor(s) disqualified it. This expansion of pedestrian priority would introduce new risks<sup>28</sup> but the overall effects would likely be increased pedestrian activity and subsequent improvements to road safety outcomes.

## 4. Summary

This research paper compared the differences between New Zealand, Australian and US pedestrian priority laws and looked at the likely outcomes of the establishing the foreign rules in New Zealand. The road rules in New Zealand are established by the Ministry of Transport and NZTA and only provide pedestrians priority at specifically-designed “pedestrian crossings” as well as a few other proscribed locations. The legal dominance of vehicles is visible within road and road marking design; particularly at unsignalised intersections where vehicle limit lines are set with no acknowledgement of pedestrian desire paths.

In Australia, motorists must give way to pedestrians who are crossing the same street as motorists are about to enter but not those who are crossing the street a motorist is exiting. This is a significant increase in pedestrian priority but this difference is not apparent in road or road marking design. Bringing these give way changes to New Zealand would likely result in minor crash risk outcomes. Whether these are positive or negative requires greater analysis, which is complicated by the general incompatibility of the two countries’ crash data sets.

In the US, priority for pedestrians is formally established at signalised and unsignalised intersections through the use of crosswalks. The definition of a crosswalk is very broad and road controlling authorities justify them through different types of warrants analyses; often resulting in their installation at high volume and high risk locations. Without establishing clearer parameters or definition of what a crosswalk is, bringing them to New Zealand would likely result in the same, increased crash rates as the US.

A less drastic alternative is to increase the range of contexts in which traditional pedestrian crossings are installed in New Zealand to include pedestrian desire paths across unsignalised intersections. This range of contexts could be limited to control for factors known to increase crash rates.

## Endnotes

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<sup>1</sup> Land Transport Management Act 1998

<sup>2</sup> Land Transport (Road User) Rule 2004 (SR 2004/427)

<sup>3</sup> Land Transport Rule – Traffic Control Devices 2004 (Rule 54002)

<sup>4</sup> An important note to make is that “give way” is not the same as “right of way”. Pedestrians do not legally have “right of way” even at these locations. They must still cede to vehicles that have arrived first.

<sup>5</sup> NZ Ministry of Transport – *The Official New Zealand Road Code 2012/13*. Wellington, New Zealand: Author

<sup>6</sup> LTNZ / NZTA has developed a *Crossing Facilities Calculation Spreadsheet*, although some local councils continue to utilise their own warrants (i.e., former Manukau City Council, now Auckland Transport).

<sup>7</sup> New Zealand Transport Agency (NZTA 2009) – *New Zealand Pedestrian Planning and Design Guide*. Wellington, New Zealand: Author

<sup>8</sup> New Zealand Transport Agency (NZTA 2010) – *Manual of Traffic Signals and Markings: Part 2 Markings (MOTSAM 2)*. Wellington, New Zealand: Author

<sup>9</sup> Veith, Gary (Ed.). 2010. *The Guide to Road Design: Part 4A – Signalised and Unsignalised Intersections*; Austroads Publication AGRD04A/10

<sup>10</sup> MOTSAM 2, Section 3.03 – *Edge Lines at Intersections*

<sup>11</sup> Retrieved from <http://www.scoti.gov.au>

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- <sup>12</sup> Australian Transport Council / Standing Council on Transport and Infrastructure – *Australian Road Rules* (2012). Canberra, Australia: National Transport Commission
- <sup>13</sup> Australian Road Rules, Part 7 Giving Way – Rule 72 (*Giving Way at an Intersection (except at ‘T’ intersection or roundabout)*) and Rule 73 (*Giving Way at a ‘T’ Intersection*)
- <sup>14</sup> An exception I discovered was in Brisbane, Queensland, where red-painted crosswalk-type areas are installed across some minor intersection approaches for increased visibility.
- <sup>15</sup> R. Bean, NZTA Senior Engineer (personal communication, 16 April 2013)
- <sup>16</sup> New South Wales Government, Transport for New South Wales – *Road Traffic Crashes in New South Wales; Statistical Statement for the Year Ending 31 December 2011* (2012). Chippendale, New South Wales: Centre for Road Safety, Transport for New South Wales
- <sup>17</sup> NZ Crash Analysis System search [‘pedestrian’, ‘fatalities’, ‘2011’]
- <sup>18</sup> T. Hughes (personal communication, 2 May 2013)
- <sup>19</sup> Allsopp, G., Johnson, L., Span, D., Preston, M., Morell, E., FitzGerald, C..., Lee, D. (2007). Qualitative and quantitative pedestrian research in NSW. *NSW Centre for Road Safety, Roads and Traffic Authority of NSW.*
- <sup>20</sup> US Department of Transportation, Federal Highway Administration – *Pedestrian Crosswalk Case Studies: Richmond, Virginia; Buffalo, New York; Stillwater, Minnesota – REPORT NO. FHWA-RD-00-103* (2001). Washington, D.C.: Author
- <sup>21</sup> American Association of State Highway and Transportation Officials (AASHTO) – *National Cooperative Highway Research Program (NCHRP); Pedestrian Safety Prediction Methodology. Web-only Document 129: Phase 3.* Washington, D.C.: Transportation Research Board of the National Academies
- <sup>22</sup> *Uniform Vehicle Code and Model Traffic Ordinance*, Millennium Edition, National Committee on Uniform Traffic Laws and Ordinances, Evanston, IL, 2000.
- <sup>23</sup> Zhao, Y. (2012). *Guidelines for Marked and Unmarked Pedestrian Crosswalks at Unsignalized Intersections*; Presentation at Institute of Transportation Engineers (ITE) Western District Annual Meeting (Santa Barbara, California); Technical Paper Compendium.
- <sup>24</sup> New South Wales Government, Transport for New South Wales – *Road Traffic Crashes in New South Wales; Statistical Statement for the Year Ending 31 December 2011* (2012). Chippendale, New South Wales: Centre for Road Safety, Transport for New South Wales
- <sup>25</sup> US Department of Transportation, Federal Highway Administration – *Safety Effects of Marked Versus Unmarked Crosswalks at Uncontrolled Locations: Final Report and Recommended Guidelines*, FHWA Publication No. HRT-04-100, 2005
- <sup>26</sup> Robinson, D. (2005); *Safety in Numbers: More walkers and bicyclists, safer walking and bicycling*; Health Promotion Journal of Australia (2005); Volume 16, pp. 47-51.
- <sup>27</sup> Although as with the current Pedestrian Crossing (zebra) warrants arrangement in New Zealand, this could lead to local variants and preferences with regards to warrants analyses.
- <sup>28</sup> Crosswalks specifically prioritise the types of movements that are the largest contributors to pedestrian road traffic fatalities in the 2011 New Zealand data – the ‘NA’ and ‘NB’ type crashes discussed in Section 2.4.