Ministry of Transport

Road Safety Strategy – Infrastructure, Design and Planning Reference Group Outcomes Report

March 2019

PURPOSE

This report provides a preliminary summary of the outcomes from the Infrastructure, Design and Planning Road Safety Strategy reference group process. It sets out:

- the key themes that emerged from the group discussions
- the key challenges, strategic priorities and potential approaches identified by each group (including areas of agreement and contention).

CONTEXT

The Ministry of Transport is leading the development of a new road safety strategy and action plan

The Government has agreed to the development of a new road safety strategy for New Zealand, replacing the current Safer Journeys strategy, which ends in 2020. It will outline the steps New Zealand will take to meaningfully reduce deaths and serious injuries over the coming decade.

As part of the development of the strategy, the Ministry of Transport is investigating adopting the 'Vision Zero' approach to road safety thinking. This would set a long-term objective of eliminating deaths and serious injuries on our roads.

Reference groups were established to provide early input on the strategy and action plan

Intent and scope of reference groups

Five reference groups were established to discuss key road safety issues, and identify priorities and potential interventions. The purpose of the groups was to:

- provide key stakeholders with an opportunity to influence the development of the strategy at a relatively early stage
- build a better shared understanding of the challenges and opportunities for the new strategy.

The reference groups were not asked to reach a common position, or required to endorse recommendations or reports given we were trying to understand and highlight the variety of views.

Each group focused on one of the following broad areas:

- Speed
- Infrastructure, design and planning
- Vehicles, vehicle standards and certification
- Road user behaviour
- Vehicles as a workplace.

All reference groups considered a range of cross-cutting factors including the safety of vulnerable users, equity, technology, and rural and urban perspectives. They also considered links to broader health harms and social impacts.

The Infrastructure, Design and Planning reference group examined road safety issues associated with land use planning, and infrastructure design and maintenance

Scope

This group focused on the following issues relating to infrastructure, design and planning:

- integrating safety and land use planning (including improving public transport access and walkability in an urban environment)
- the role of multi-modal transport in road safety
- standards and guidelines for design and maintenance of infrastructure
- rural road safety improvements
- road safety in the infrastructure lifecycle
- the engagement challenges
- links to public health impacts, including road dust and noise.

Membership and process

This reference group consisted of representatives from across central and local government, key stakeholders in the transport sector, and road safety experts and advocates. ***Appendix A*** shows the reference group members.

The group was supported by:

- Chair: Nic Johansson and Harry Wilson (the New Zealand Transport Agency (NZTA))
- Advisers from the Ministry of Transport, NZTA, Auckland Transport and the Accident Compensation Corporation (ACC).
- Expert adviser:Dr Simon Kingham.

The reference group also considered a range of cross-cutting factors including the safety of vulnerable users, equity, technology, and rural and urban perspectives. They also considered links to broader health harms and social impacts.

The group held four half-day meetings between September and November 2018. The first meeting included a facilitated workshop to identify the opportunities and challenges that the group wanted to focus on in subsequent sessions.

CURRENT STATE

Evidence on the risks and harms in this area

Our road network is long and stringy, our population is relatively low and dispersed and our natural geography is challenging. This makes the network harder to maintain and improve. There are 94,000 km of roads on the network (11,000 km of State Highways and 83,000 km of local roads). Most open roads have a 100km/h speed limit, and many offer little protection if road users make a mistake. 56% of the road network (52,640km) has a High or High-Medium Infrastructure Risk Rating.

Infrastructure Risk Rating

Land Use	High	Medium High	Medium	Low Medium	Low
Rural	32.9%	23.3%	37.1%	5.6%	1.0%
Urban	1.1%	13.4%	40.8%	39.1%	5.6%
All	25.6%	21.0%	38.0%	13.3%	2.0%

Urban road networks have been primarily designed for motor vehicles and there are many high-risk urban intersections and arterials. Most high-risk urban roads have a 50km/h speed limit and pose a significant risk to vulnerable road users.

The population densities of many of our major urban centres is relatively low and private motor vehicle traffic is still by far the main mode of travel. This increases risk exposure rates. Land use and transport planning are not well integrated. For example, the journey to school is perceived by many parents and caregivers to be unsafe, which does not encourage walking and cycling to school[1].

New Zealand roads

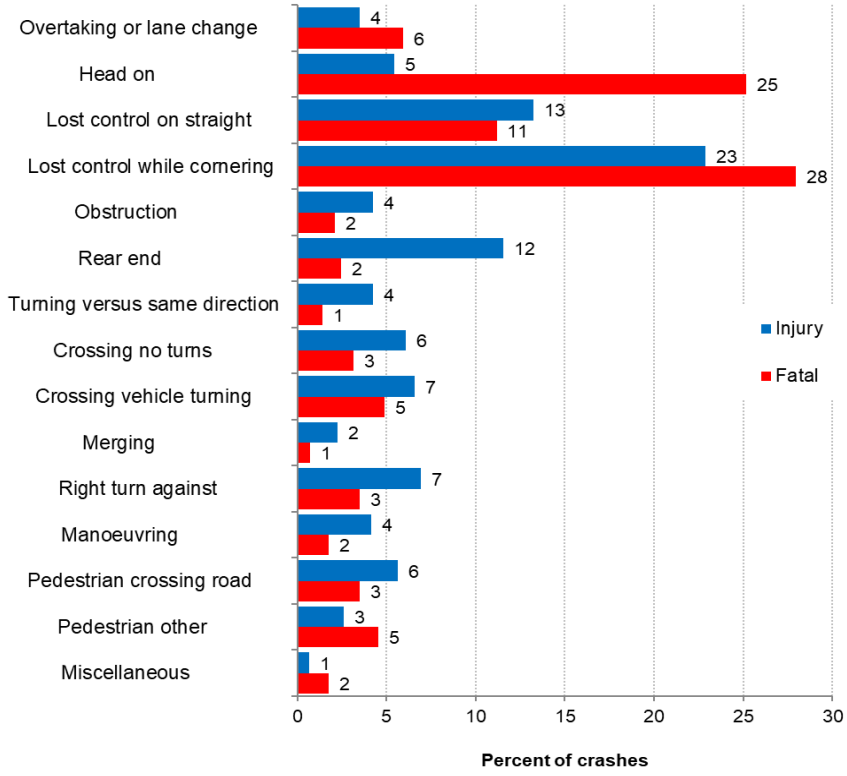
	State Highway	Local Roads
Length of Network	12% (11800 km)	88% (84000km)
Travel (vkt)	50%	50%
Deaths	52%	48%
Serious Injuries	36%	64%
Urban / Rural split (by deaths and serious injuries)	19% / 81%	65 %/ 35%

[1] https://www.nzta.govt.nz/assets/resources/safer-journeys-for-schools/docs/safer-journeys-for-schools-guidelines-for-school-communities.pdf

12% of the road network accounts for 50% of the vehicle kilometres travelled (VKT). The State Highway network has a far higher rate of deaths per km of network and the crash problem is primarily rural mid-block (ie between intersections). The local road network has the greater proportion of serious injuries and the crash problem is largely urban with greater proportions of intersection and vulnerable road users.

Head-on and loss of control crashes account for over two-thirds of all fatal crashes and 41% of all injury crashes, with significant infrastructure implications.

Crash movements by crash severity



Deaths by road user and road type (2008-2017)

Year	Motorised Vehicle Users		Motorcyclists		Cyclists		Mobility Scooter Users		Pedestrians		Skateboarders	
	Local Road	State Highway	Local Road	State Highway	Local Road	State Highway	Local Road	State Highway	Local Road	State Highway	Local Road	State Highway
2008	130	138	31	20	6	4	5	1	20	11	0	0
2009	136	159	28	20	4	4	1	0	21	10	1	0
2010	130	148	33	17	8	2	1	0	21	15	0	0
2011	94	117	23	10	6	3	0	0	19	12	0	0
2012	90	127	24	26	4	4	0	0	22	11	0	0
2013	81	92	21	18	8	0	1	1	23	8	0	0
2014	89	108	25	18	6	4	0	0	26	17	0	0
2015	106	126	33	21	5	1	0	2	16	9	0	0
2016	104	137	32	20	4	1	2	1	13	12	1	0
2017	121	152	24	22	12	6	2	0	28	11	0	0

Source: https://public.tableau.com/profile/mot.analytics#!/vizhome/shared/QWTTR7XGC

Serious injuries by road user and road type (2008-2017)

Year	Motorised Vehicle Users		Motorcyclists		Cyclists		Mobility Scooter Users		Pedestrians		Skateboarders	
	Local Road	State Highway	Local Road	State Highway	Local Road	State Highway	Local Road	State Highway	Local Road	State Highway	Local Road	State Highway
2008	971	675	326	140	160	38	6	2	231	35	4	0
2009	905	696	331	132	138	18	3	0	204	35	4	0
2010	866	600	310	131	142	19	8	1	217	23	1	0
2011	736	568	259	130	158	20	1	1	180	29	6	0
2012	724	617	227	113	140	35	4	0	201	32	9	1
2013	692	537	263	105	155	31	6	2	186	41	4	0
2014	673	608	287	119	133	25	5	1	185	37	3	1
2015	728	605	297	127	131	15	3	0	227	27	6	0
2016	923	692	333	141	143	26	7	1	233	26	9	0
2017	1,069	768	340	168	165	25	10	2	245	36	3	1

Source: https://public.tableau.com/profile/mot.analytics#!/vizhome/shared/QWTTR7XGC

Identified gaps or weaknesses in the evidence base

A key issue identified by the group is a lack of appropriate framework for addressing safety for all modes of travel. The group called for a multi-modal framework that is explicit about conflicts and trade-offs, and how and where they should be prioritised.

Other identified gaps or weaknesses identified by members are set out below.

- There is a lack of data on risk exposure for how actual and perceived safety is inhibiting safe access and travel, particularly for vulnerable road users.
- The value of on-street parking is not well understood, in particular how it is valued against proposals for new cycling facilities.
- There is a lack of star-rating crash-risk measures for local roads.
- It is not clear why road safety has deteriorated so markedly in the last five years.
- No thorough exploration of the governance of road infrastructure is available.

Current approach

Investment in infrastructure improvements, renewals and maintenance is channelled through the NLTP. This includes an activity class for investment in safe walking and cycling infrastructure. There are a range of standards and guidelines for managing land transport infrastructure. Infrastructure planning falls under the Land Transport Act 1998 and the Resource Management Act 1991.

Future trends

Population and housing growth generate demand for transport infrastructure and services. These are both predicted to increase significantly over the next decade, particularly in Auckland. Travel patterns are also likely to change. More urban trips are likely to be taken by public transport, active modes such as walking and cycling, ride sharing and emerging mobility devices such as e-bikes and e-scooters. Technology and road environment complexity are predicted to continue rapidly and have the potential to create new risks. Any growing inequities among communities and public engagement processes would create greater challenges at both the national and local level.

Links to other reference groups and policy areas

Speed – There was group support for reducing speed on high-risk roads where infrastructure improvements are not possible. It was also noted that speed limits and infrastructure treatments should be considered in tandem. This includes how changes to road and street design, signage and surrounding environments can support lower speeds and improve road user compliance. There was also support for more variable speed limits at high-risk intersections and schools.

Road user behaviour – A change in the way we engage with the public and road users to build support and encourage behaviour change was identified as important. This includes an appreciation that local views may not always align with proposals for change, but that it was essential to conduct meaningful engagement. Equally, the value of creating engagement processes that include diverse views is considered important for addressing inequities in road trauma.

Environment and health – Environment and health were seen as two key sectors sharing common objectives as road safety. Good infrastructure, planning, design and maintenance can contribute to making places healthier, safer and more liveable, where people can safely travel by active modes and public transport. This includes using quieter surfaces to reduce noise during operation and maintenance, targeted sealing of roads where they are close to people, better lighting on footpaths, cycleways and crossing points, encouraging a shift to active modes, public transport and electric vehicles, and generally stronger consideration of environmental impacts in transport planning.

Land use planning – The group identified that well-integrated land use and transport planning can reduce the need to travel by private motor vehicle. They noted the importance of providing viable and safe transport choices for people and a growing emphasis on place-making in both existing and new developments. A challenge identified in this area included the urgency for addressing housing needs and how this could impact on new developments lacking safe road infrastructure.

FEEDBACK FOR THE STRATEGY

Level of ambition required

Broad (but not universal) support for Vision Zero – Many members suggested that Vision Zero is the only ethically acceptable approach to road safety. A key theme was the need to articulate clearly what we mean by Vision Zero and how a Vision Zero approach would differ in practice to our current road safety approach. Some members proposed target dates, including interim targets. The mean target was an approximate 50 percent reduction in fatalities by 2030. Targets were also proposed for the infrastructure rating of the road network and the safety rating of the vehicle fleet. An alternative view was expressed that Vision Zero is a philosophy, not a target and so needs to be enshrined in transport decision making now.

Importance of clear and ambitious outcomes – Members highlighted the importance of ensuring that the new strategy sets clear and ambitious outcomes that would substantially reduce the level of harm on New Zealand's roads. Members also discussed the opportunity of road safety to contribute towards broader transport outcomes, such as accessibility and health outcomes.

Need for a systems-based approach – While the reference group was generally focused on discussing the challenges and potential approaches in the infrastructure, planning and design topic areas, there was strong support for a Safe System approach to deliver on Vision Zero, in particular linking infrastructure and planning with speed management.

Initiatives need to be supported by a strong management system – There was broad acknowledgment of the importance of strong overall system management and delivery capability. Members identified capacity, capability and funding challenges throughout the system, in both local and central government, and within the sector more broadly. Governance of road infrastructure was also raised in terms of who is responsible or accountable. Members were clear that a key focus of the new strategy will need to be on addressing these challenges.

Need for strong national leadership and accountability vs. shifting the public narrative – The group discussed the challenges with making substantial improvements to road safety in an environment where the public discussion about road safety is highly contested. Members emphasised the importance of bringing the public along. However, the group also noted that in some instances it may be more appropriate for government to take leadership and impose change to achieve desired outcomes, even if this is ahead of public opinion.

Priority issues for the new strategy

Ambition / Safe System management

- There was strong support for a transformational approach to reduce New Zealand road trauma, although opinions differed on what this would require in terms of the scale of infrastructure. There was agreement that target setting and safety performance measures are required to introduce greater accountability and monitoring of progress. Additionally, clear road safety governance structures were supported.

Standards and guidelines

- The group considered that New Zealand's current standards and guidelines are not always fit-for-purpose. They do not consistently cater for safety and access for all modes, help establish self-explaining roads through design, or facilitate the creation of safe and liveable urban areas. Interactions between various standards and guidelines (e.g. urban design and accessibility standards) are also challenging, notably for less-abled pedestrians. The group also noted that lack of sector capability and capacity hampers consistent application of standards and guidelines.
- Alongside support for Vision Zero, there was almost universal agreement that the adoption of a standard aligned with the Healthy Streets design principles would greatly improve safety in urban areas and deliver health and environmental co-benefits.
- The group considered that the current system does not incentivise innovation. This makes it difficult to trial safety treatments successfully deployed elsewhere.

Planning

- The group believed that road safety planning should include a multi-modal framework that addresses safety for all modes, and is explicit about conflicts, trade-offs and priorities. Land use planning and transport planning also need to be better integrated and there needs to be better provision for planning at a network level. Auckland Transport's Roads & Streets framework is one example of this place and movement priority for different road typologies.
- Members noted that the infrastructure lifecycle is not being considered holistically and there are gaps in the road safety auditing process. They expressed concerns that the Safe System approach is not being properly considered and suggested that a sustainable transport hierarchy and assessment framework would better protect vulnerable road users. Improved cross-sector collaboration and a broader range of experts is also needed throughout the lifecycle to inform the specific perspectives of transport planners, designers and engineers.

- Opportunities are being lost to improve safety for all modes, e.g. sealing shoulders. This is partly due to a lack of minimum standards for all modes during maintenance, and a reactive (rather than proactive) approach being taken to maintenance.
- Lack of data and understanding of the systemic issues underlying road trauma for all modes also hampers efforts to improve safety.

Investment

- Fundamentally, the group supported an overhaul of investment decision making and assessment frameworks, in order to invest in the right interventions, at the right scale and to ensure that safety is not traded off for efficiency or other objectives. The wider co-benefits of safety investments should also be factored into decision making.
- The group emphasised the need for an overall increase in the road safety budget, as lack of funding was thought to be a major barrier for road controlling authorities.
- Funding needed to be better targeted to evidence-based risk, especially for vulnerable road users. This will require more data, including on perceived risk. Members also highlighted the need for greater investment in research and the development of new road safety treatments, and emerging technologies.

Engagement

- The group considered that the lack of political and public support can be a barrier, particularly where safety improvements reduce local access, and supported more effective community engagement. However, they saw the tension between building acceptance and making necessary changes ahead of public support. It was also recognised that cross-agency collaboration would be more effective if outcomes were shared.
- Equally, the general public seem to lack clear visibility of the extent of road trauma and its wider impact, and government could help raise awareness at national and local levels.

Potential approaches and initiatives

The group were asked to discuss and then rank a range of potential first actions (see ***Appendix 2***). The interventions which received the highest support were:

Standards and guidelines

- Enshrine Healthy Streets design principles, including car-free streets in transport and land use planning and design
- Improve standards and guidelines, but particularly for intersection design to encourage more single lane, slower speed roundabouts unless active modes can be safely separated
- Explore ways to make it easier to trial new innovative initiatives particularly where there are known benefits and examples from other countries and no harm will result

Planning

- Review auditing systems to better include pedestrian, cyclist and other vulnerable road user safety and accessibility in road safety audits right through the infrastructure lifecycle
- Implement a sustainable transport hierarchy that puts vulnerable road users at the top

- Improve understanding and the evidence base of the systemic factors underlying road trauma for all modes

Investment

- Review investment decision making and assessment frameworks to factor in the wider social, health and environmental costs and benefits and make more explicit any trade-offs between safety and other transport objectives
- Review levels of investment in road safety, particularly for active modes and better target to risk (including perceived risk)
- Invest more in research into perceptual countermeasures (road treatments intended to induce drivers to reduce travel speeds by altering driver perception of speed, risk or comfort) and new and emerging technologies
- Better align enforcement and investment in road safety

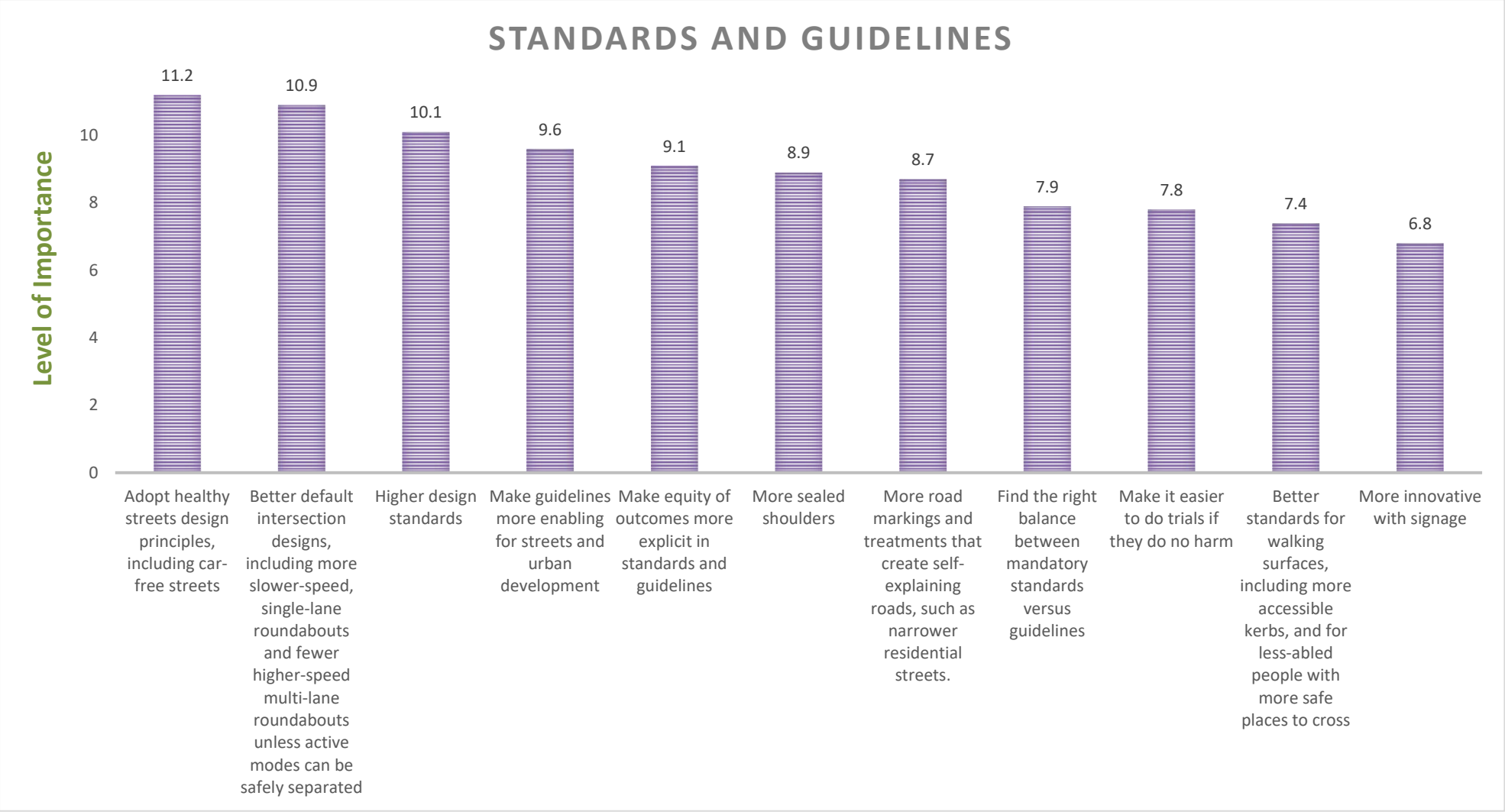
Engagement

- Improve cross-agency collaboration and shared outcomes
- Build support with more effective community engagement.

Appendix A: Membership of Reference Groups

Focus area	Speed	Infrastructure, design and planning	Vehicles, vehicle standards and certification	Road user behaviour	Vehicles as a workplace
Chair	Kirstie Hewlett, MoT	Harry Wilson, NZTA	Brent Johnston, MoT	Sandra Venables, Police	Robert Brodnax, NZTA
Advisers	MoT, NZTA, ACC	Auckland Transport, NZTA, MoT, ACC	MoT, NZTA	MoT, Police	MBIE, WorkSafe, MoT, NZTA
Expert Advisers	Dr Hamish Mackie	Dr Simon Kingham	Dr Kim Dirks	Dr Samuel Charlton	Dr Felicity Lamm
Other members	• Police • Ministry of Education • Auckland Transport • Hamilton City Council • Christchurch City Council • Automobile Association • Road Transport Forum • NZ School Speeds • Cycling Action Network • Rural Women NZ • NZ Institute of Driver Educators • Living Streets Aotearoa • Sport New Zealand • ACC • Transportation Group New Zealand • Students Against Dangerous Driving	• Police • Ministry of Health • Wellington City Council • Dunedin City Council • Timaru District Council • Automobile Association • Living Streets Aotearoa • Disabled Persons Assembly • Greater Auckland • New Zealand Planning Institute • Bike Auckland • Road Transport Forum • Civil Contractors NZ • Generation Zero • Transportation Group New Zealand	• Police • ACC • Ministry of Business, Innovation and Employment • Ministry of Health • NZTA • Automobile Association • IAG Insurance • Brake • Motor Trade Association • Motor Industry Association • VIA • Motorcycle Safety Advisory Council • Bus and Coach • Uber • Vehicle Inspection NZ • Institute of Road Transport Engineers	• Police • NZTA • ACC • Ministry of Education • Ministry of Justice • Auckland Transport • Waikato Regional Council • Safe and Sustainable Transport Association • Motorcycle Safety Advisory Council • Automobile Association • Health Promotion Agency • Plunket • Brake • NZ Institute of Driver Educators • Cycling Action Network • Rental Vehicle Association • Disabled Persons Assembly • Living Streets Aotearoa	• Police • WorkSafe • NZTA • Ministry of Business, Innovation and Employment • Automobile Association • Road Transport Forum • Bus and Coach • Business NZ • Business Leaders' Health and Safety Forum • FIRST Union • NZ Professional Firefighters Union • NZ Tramways & Public Transport Employees Union • E Tu • IAG Insurance • Taxi Federation • Uber • ERoad

Appendix 2: Results of reference group prioritisation exercise




INVESTMENT
Level of Importance
0
2
4
6
8
10
11.4
10.9
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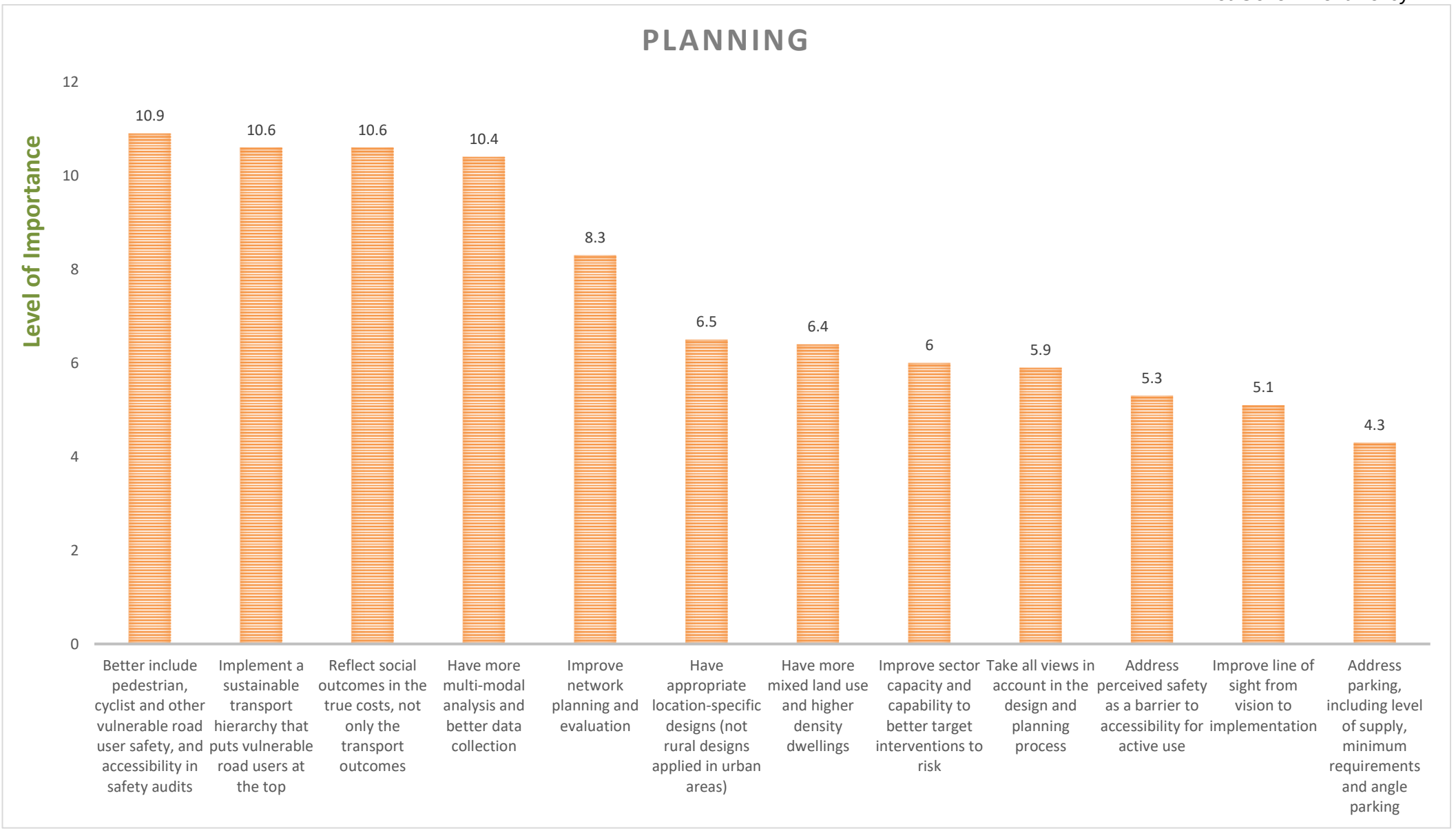
10
10
9.8
8.5
8.2
7.8
7.4
7.1
Expand road safety assessments to include social costs and benefits
Increase levels of investment and better target to evidence-based risk. (in the case of vulnerable road users, require more data to do this or measures of perceived risk)
Increase funding for active modes
Be clearer about what improvements are being designed for – safety or efficiency
Expand the benefit cost ratio (BCR) calculation to include benefits to active modes
Increase investment in researching perceptual countermeasures
Increase investment in new and emerging technologies
Be clear about how travel time is valued and how much it trades off with safety
Invest more on lower quality roads
Improve assessment of footpath maintenance needs
Have a targeted fund to address skid resistance


PLANNING
Level of Importance
12
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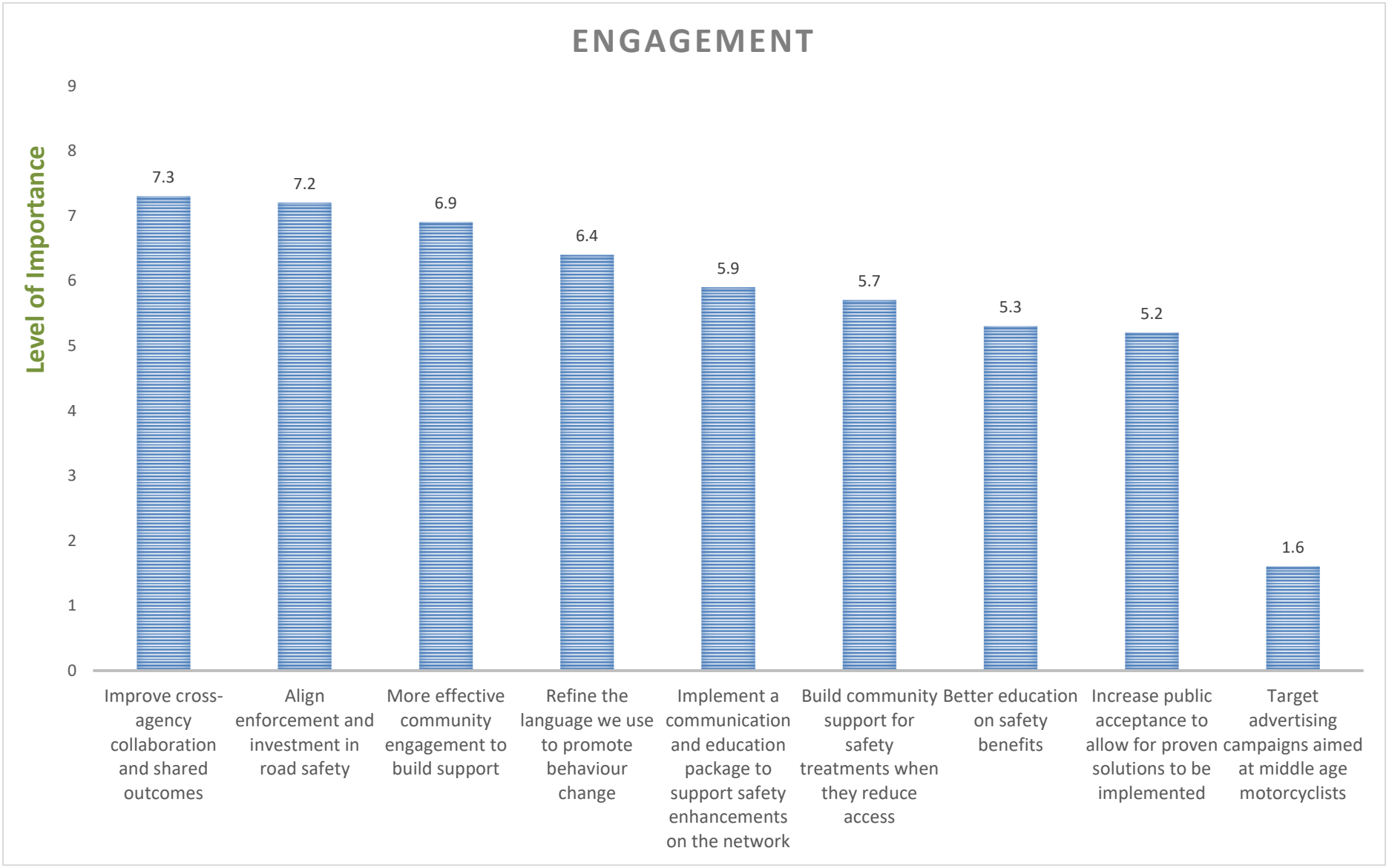
10.9
10.6
10.6
10.4
8.3
6.5
6.4
6
5.9
5.3
5.1
4.3
Better include pedestrian, cyclist and other vulnerable road user safety, and accessibility in safety audits
Implement a sustainable transport hierarchy that puts vulnerable road users at the top
Reflect social outcomes in the true costs, not only the transport outcomes
Have more multi-modal analysis and better data collection
Improve network planning and evaluation
Have appropriate location-specific designs (not rural designs applied in urban areas)
Have more mixed land use and higher density dwellings
Improve sector capacity and capability to better target interventions to risk
Take all views in account in the design and planning process
Address perceived safety as a barrier to accessibility for active use
Improve line of sight from vision to implementation
Address parking, including level of supply, minimum requirements and angle parking


ENGAGEMENT
Level of Importance
9
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7
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6.4
5.9
5.7
5.3
5.2
1.6
Improve cross-agency collaboration and shared outcomes
Align enforcement and investment in road safety
More effective community engagement to build support
Refine the language we use to promote behaviour change
Implement a communication and education package to support safety enhancements on the network
Build community support for safety treatments when they reduce access
Better education on safety benefits
Increase public acceptance to allow for proven solutions to be implemented
Target advertising campaigns aimed at middle age motorcyclists