A new proactive approach to speed limit setting in Queensland

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Abstract

The Speed Limit Review process in Queensland is conducted according to the Department of Transport and Main Roads' *Manual of Traffic Control Devices, Part 4: Speed Controls*. The current process is mainly reactive and uses a complex methodology, comparing the crash rate of the road section to the 'critical crash rate'. It is also heavily reliant on the experience of practitioners to judge the level of road risk. The new SLR process combines proactive road infrastructure risk assessments with refined crash risk assessments to provide more tangible guidance to practitioners and recommend safer speed limits on high risk road sections.

Background

The current Speed Limit Review (SLR) process outlined within the Queensland Department of Transport and Main Roads' (TMR) *Manual of Traffic Control Devices, Part 4: Speed Controls (MUTCD Part 4)* is recognised as being reactive and is typically initiated as a response to community requests.

Additionally, it is considered that the current SLR process does not adequately consider the crash and infrastructure risks associated with a road corridor. As such, this project seeks to revise the existing method for undertaking SLRs by incorporating current international best practice. It is anticipated that the revised SLR process will also better align with the Safe System framework.

New Speed Limit Review Process

TMR's Safer Roads team in Land Transport Safety Branch has developed a new SLR process for Queensland that utilises an Infrastructure Risk Rating (IRR) and Crash Risk Rating (CRR) to assess road safety risk along a road corridor and identify segments of the road network that require appropriate speed management interventions. The method has been previously adopted by New Zealand Transport Agency to proactively determine Safe and Appropriate Speeds.

Infrastructure Risk Rating

IRR is an assessment of the overall risk associated with the road and roadside infrastructure along an individual homogeneous road segment. IRR could be considered similar to models such as AusRAP and Netrisk, insofar as it attempts to proactively assess road segments to identify road infrastructure risk. However, IRR is based on only seven road attributes so is not as refined as other models, but the fewer data requirements and the less complex assessment methodology is less labour intensive, minimising assessment time and costs.

Crash Risk Rating

The CRR is an analysis of the crashes that have occurred along a road segment. The crash rate is calculated and compared against risk thresholds to assign a 'Low', 'Medium' or 'High' CRR.

Road Risk Metric

The new SLR process combines the reactive CRR and proactive IRR for road corridors to identify the overall Road Risk Metric (RRM) as outlined in Table 1.

Table 1. Road Risk Metric (RRM) matrix

		Infrastructure Risk Rating				
		Low	**Low Medium**	**Medium**	**Medium High**	**High**
Crash Risk Rating	**High**	High	High	High	High	High
	Medium	Medium	Medium	Medium	Medium	High
	Low	Low	Low	Medium	Medium	High

As can be seen in Table 1, roads that have a High RRM are considered to either have a history of fatal and serious injury crashes, or the road infrastructure represents a high risk to the road user, or both. Overall, roads with a High, Medium and Low RRM represent 12.9%, 25.5% and 64.6% of road network analysed, respectively. Roads identified to have a High RRM are roads that are considered suitable for speed limit reductions.

Conclusions

Queensland's new SLR process is expected to enhance the ability for practitioners to assess risk along road corridors and recommend safer, more appropriate speed limits on roads with high crash and/or infrastructure risk.

References

Department of Transport and Main Roads. (2003). Queensland Manual of Uniform Traffic Control Devices, Part 4: Speed Controls (latest updated in Nov 2017)