

A Corridor Analysis Approach to Selecting Combined Red-light Speed Camera Sites in Queensland

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Abstract

During 2018, an enhanced methodology was developed for selecting suitable sites for the placement of combined red-light speed cameras within Queensland. Preliminary evaluations of recent installations suggest that the combined red-light speed cameras can influence crashes at the immediate site and at other signalised intersections along the adjoining road corridor, providing support for previously reported “halo effects”. Using this reasoning, the Department of Transport and Main Roads (TMR) revised its site selection methodology to prioritise placement by ranking road corridors in one-kilometre segments on the prevalence of red-light violation type crashes and speed related crashes.

Background

Since 1992 Queensland has maintained a camera enforcement program to reduce the occurrence of crashes involving disobeying red traffic lights. Camera technology has evolved from wet film cameras shared between sites to digital full-time enforcement. More recently, red-light cameras have the combined capability of speed detection. During 2018, combined red-light speed cameras were installed at five new sites and five existing sites were upgraded with the new technology within Queensland. Historically, site specific crash data was used to analyse individual intersections to identify the worst locations for crashes involving disobeying red traffic lights. This was successful with an estimated \$1.16 million per year in crash reductions (Newstead, S,V., Budd, L. & Cameron, M. 2018).

Methods

Recent analysis of existing sites showed that red-light cameras can influence crash prevalence at other signalised intersections along the same corridor, providing support for previously reported “halo effects” (Retting, Ferguson & Hakkert, 2003). For example, in January 2017 a new combined red-light speed camera site was activated at the intersection of Morayfield Road and Devereaux Drive, Morayfield. This site is in a one-kilometre corridor of Morayfield Road where there are five signalised intersections. During the three years prior to the site activation, there were 14 crashes involving disobeying a red traffic light. In the 18 months post-activation, there has been one crash involving disobey red traffic lights. Based on this evidence, TMR recently revised its site selection methodology to prioritise placement by ranking road corridors in one-kilometre segments on the prevalence of red-light violation type crashes and speed related crashes.

Results and Conclusions

In agreement with the Queensland Police Service, the enhanced methodology has been utilised in the 2018-19 round of site selections and will be subject to an evaluation to determine its effectiveness on crash prevalence across all sites. The results of the proposed evaluation will potentially inform TMR’s long-term approach to enforcement deployment network wide to complement other road safety initiatives.

References

- Retting, R., Ferguson, S. & Hakkert, S. (2003). Effects of red light cameras on violations and crashes: A review of the international literature, *Traffic Injury Prevention*, 4(1), 17-23.
- Newstead, S.V., Budd, L. & Cameron, M. (2018). Evaluation of the road safety benefits of the Queensland Detected Offence Program (CDOP) in 2016: *Red Light Speed Cameras*, 31-35.