Use of Crash Data to Select and Deploy Mobile Speed Cameras in Queensland

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Abstract

Queensland's mobile speed camera program has had great success as a road safety initiative. In 2015 the camera detected offence program was responsible for annual casualty crash savings of approximately 3400 crashes (Newstead, Budd & Cameron, 2017). However, it was also recognized that any incremental improvement of mobile speed camera deployment could have a large road safety benefit. Therefore, a new mobile speed camera scheduler was created in Queensland in 2016 enabling the improved use of crash data in both the selection and scheduling of mobile speed camera sites. As part of the improvement, deployment sectors were created and analysed for crash location, camera location, detailed descriptions of crashes and deterrence areas for each site. The benefits of the changes including the identification and creation of over 200 new camera sites, will be discussed in this paper.

Background

In May 2016 the Queensland Police Service (QPS) introduced a new scheduler for the deployment of mobile speed cameras in Queensland. As part of the development of the new scheduler they approached the Department of Transport and Main Roads to work collaboratively to improve the use of crash data in the selection and deployment of mobile speed cameras.

Method

Road crash data was identified as a potential rich source of information to improve the selection and determination of speed camera selection and deployment. Although the camera detected offence program was responsible for annual casualty crash savings of around 3400 in 2015 (Newstead, Budd & Cameron, 2017), any incremental improvement of camera deployment could have a large road safety benefit. In particular the mobile speed camera program was associated with 98% of the crash savings.

Historically Queensland used circular speed camera zones which meant that there were gaps between the circles which did not allow for the selection of primary speed camera sites. As a first step, therefore, Queensland was remapped into deployment sectors resembling grid cells that provide 100% coverage and allowed for the creation of a new sites anywhere a sector met with crash criteria. An analysis was conducted using the remapped sites. Each new speed camera sector was mapped with crashes where speed was a contributing factor, current location of cameras and key characteristics of crashes including time, day, headed direction, crash type and vehicles involved. This allowed for the easy identification of sectors that had significant speed related crashes but no speed camera locations. This information was provided to QPS and they undertook detailed analysis of the crash data, from which they created over 200 new sites.

The scheduler is based on the principle of the public seeing cameras anywhere at any time. The scheduling of mobile speed cameras was based on the number of speed related crashes in the mobile speed camera zone. The greater the number of crashes, the greater the number of mobile speed camera deployments. For example a zone with eight crashes would be visited twice as often as a zone with two crashes.

Results

The deficiency of the previous scheduling method was that some sites were overvisited as they included crashes that were not influenced by the camera sites. Using a new method, each camera site is assigned its own deterrence area that determines a weighting of how often the site is scheduled. This means that rather than use all the crashes in a sector or zone to decide how often a site is visited, only those crashes that will be influenced by the mobile speed camera site are used. This more tailored road safety approach means that site deployment is now better aligned to reducing the incidence of road trauma.

References

Newstead, S.V., Budd, L., Cameron, M.H, 2017. Evaluation of the Camera Detected Offence Program (CDOP): 2013-2015. Final Report. Monash University Accident Research Centre (MUARC), Melbourne.