High Risk Rural Intersection Towards Zero

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Abstract

Intersections pose a significant risk to drivers on the rural road network in Victoria with 41% of total fatal and serious injuries (FSI) occurring at intersections.

As such, the Victorian Government has invested $25 million to deliver treatments for over 200 high-risk, high-speed rural intersections. Under the program, government collaborated with road safety consultants in an interactive process to develop and design treatments in a timely manner.

The investment is expected to save 17 lives and 177 serious injuries over the average 10-year treatment life with a projected completion date of June 2020. Treatments include side road activated speeds, electronic vehicle activated warning signs, turn lanes and delineation and visibility improvements.

Background

In Victoria, 41% of deaths and serious injuries occur at intersections and, according to an Intersection Risk Assessment, 68% of deaths and serious injuries occur within 50 m of an intersection. At such a high rate of occurrence, the social and economic costs of these crashes are considerable. In rural Victoria, there were 2,663 serious casualties caused by intersection crashes and 4,994 serious casualties caused by run-off-road crashes. This program will target over 200 high-risk intersections on high-speed rural roads by implementing effective low-cost treatments.

Despite the treatment of many high-risk intersections in the past, a considerable number of low volume rural intersections in high-speed zones remain untreated. These intersections do not generally achieve a BCR high enough to justify transformational Safe System treatments, such as roundabouts. Instead of ignoring these intersections, a proactive approach was utilised to assess the intersections, procure services to expedite the program, and implement treatments to achieve safety benefits sooner.

As part of the Towards Zero 2016-20 Strategy and Action Plan, the Victorian Government is investing $25 million on effective low-cost intersection treatments across regional Victoria. This is being undertaken through the Safe System Road Infrastructure Program (SSRIP).

Project costs will generally range between $50,000 and $250,000 per site. The benefits will be calculated using a 10-year crash period and treatment specific crash reduction factors (CRF) at each intersection.

Method

An analysis was undertaken to shortlist sites by using the VicRoads High-Risk Intersection Rating Tool. This tool measures crash density across intersections across the state based on crash data from the last ten years with a weighting applied to the last 5 years. Serious casualty risk is then measured by multiplying the number of crashes at each section by a severity factor, which is determined by the density of crashes at other intersections with the same attributes across the state. Once intersections were ranked by their predicted serious casualty crash risk, SSRIP shortlisted 500 sites that met the

program criteria. This was further shortlisted to over 200 intersections following consultation with the regions and councils.

A 3-tier approach was developed to ensure that treatments are cost-effective. Each tier constituted different treatment and funding levels. The suitable tier for treatment at each intersection was determined based on crash history or high risk, high traffic volumes, intersection geometry, deliverability, and cost per serious casualty saved.

Results and Conclusions

This investment is expected to save 17 lives and 177 serious injuries over the average 10-year treatment life, a total of 194 serious casualties. The program is estimated to produce a net present value of $140.3m, a BCR of 6.2.