

Dynamic Speed Management in a Managed Motorway Environment

Jimmy Liakos^a, Elizabeth Waller^b

^aTransurban ^bTransurban

Abstract

Transurban operates managed motorways, including Melbourne's CityLink which connects to public motorways in the north, south and west of the city. Managed motorways offer many benefits by optimising the network, enabling safe and reliable journeys for road users. Transurban implemented the Dynamic Speed Management Trial in 2018, increasing the default speed limit from 80 km/h to 100 km/h in off peak periods when deemed safe to do so. Baseline data including crashes, incidents and speed compliance were captured prior to the trial and continually measured during the trial. This extended abstract and presentation will report on the trial findings and learnings.

Background

In May 2015, VicRoads and Transurban announced that speed limits on sections of the Tullamarine Freeway would remain at 80km/h following the completion of the CityLink Tulla Widening (CTW) project. In order to add new lanes within the existing road corridor as part of the project, lane widths were slightly narrowed, which meant sight lines were reduced in the event of emergency braking so 80 km/h was the design speed limit.

As part of our ongoing customer focus and understanding that drivers wanted to enjoy the new lanes while travelling at the pre-upgrade speed of 100km/h, Transurban saw an opportunity to utilise the new technology installed as part of the project to dynamically and safely increase speeds during the off-peak.

Trial Description

After successful planning and collaboration with VicRoads, a six-month trial began in March 2018 to dynamically increase speeds from 80km/h to 100km/h on a 12.5km section of upgraded road between Bulla Road and the Bolte Bridge during the off-peak when safe to do so.

To ensure the trial was operating safely, the speeds were only increased to 100km/h when certain on-road conditions were met, including:

- Lower traffic volumes equal to, or less than, approximately 790 vehicles per hour, per lane, which typically occurs from 9pm to 6am. This figure was used having regard for traffic density levels (Level Of Service (LOS) B as defined in the Highway Capacity manual) to ensure vehicles have the ability to freely merge and change lanes as required.
- Dry weather such as no rain and no fog to ensure the safest conditions for braking and optimal visibility.
- No hazards on the road, including any planned roadworks or incidents.

Prior to the trial commencing, rates of crashes, incidents and speed compliance were captured as a baseline and were then measured throughout the trial. A comparison of the data before and during

the trial, showed no change with respect to crashes and incidents, whilst speed compliance increased from 60% to 92%.

An average of 182,747 minutes (3,045 hours) of travel time has been saved per month between Mar 2018 and Mar 2019. And customer feedback has been overwhelmingly positive with a highly favourable net promoter score attached to the trial and positive feedback relating to safety.

Following the completion of the trial in September, and having consideration for the positive results and feedback, Transurban decided to continue the ongoing dynamic management of speeds on this section of CityLink, resulting in an efficient, reliable and safe journey for road users.

Conclusion

This paper will provide an overview of the motivation for, and the methodology and findings from the Dynamic Speed Management trial on CityLink, including a focus on speed compliance and the drive to challenge existing standards/guidelines.

About Transurban

Transurban builds and operates roads in Australia, the USA and Canada. Our vision is to strengthen communities through transport and our road safety strategic framework is underpinned by the safe system approach. Transurban reports on its road safety KPIs, including the rate of injury crashes, and commissions independent research and analysis to inform our operations provide a safe environment for people using our network.