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Attention:

Dear Justin,

**RE: 154-178 Barwon Heads Road, Belmont
Proposed Promotion Sign: Safety Review**

1. Introduction and Proposed Sign

Stantec has been engaged to prepare a safety review assessment to accompany a planning application to install a new static pylon advertising sign at 154-158 Barwon Heads Road in Belmont (on the southeast corner of the subject site).

The subject site currently includes a single-storey warehouse building and is occupied by the *Belmont Timber Trade Centre* Mitre 10. The proposal is to install a new double-sided digital billboard (in landscape orientation) measuring approximately 12.48m x 3.2m plus 100mm frame, primarily facing the northbound and southbound traffic travelling along Barwon Heads Road only.

It is understood that static images will be displayed at specified intervals on the proposed billboard and will not incorporate flashes, movement, animation or any other dynamic effects.

The location of the proposed sign is shown below in Figure 1.

Figure 1 Location of Proposed Promotion Sign at 154-78 Barwon Heads Road, Belmont and its Surrounds – Aerial Imagery



Courtesy of Nearmap

Design with community in mind

The sign is proposed to be mounted on a new pylon on the south-eastern corner of the site which will stand approximately 9.98m above the ground, approximately 95m south from the Breakwater Road / Barwon Heads Road signalised intersection. The sign will generally not be visible to vehicles travelling along Breakwater Road and is not intended to.

A photo montage and a lighting report have been prepared as part of the application, and the information has been relied upon in this assessment. The proposed sign face elevation is shown below in Figure 2 with a 'photo montage's shown in Figure 3.

Figure 2 Development Plans showing the proposed sign face (concept drawn by *Building Consents*)

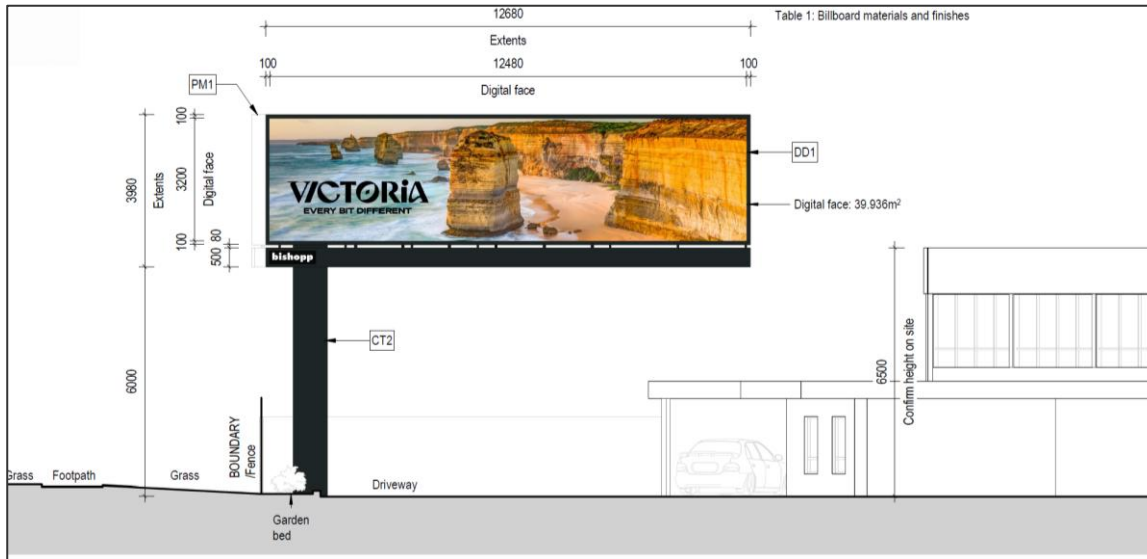


Figure 3 Photo Montage (indicative only, provided by *Building Consents*)



The following sets out a summary of the road safety review, having relied on aerial imagery, site inspection carried out on Wednesday 22 April 2026 and available Google Streetview to assess the potential safety risks and impacts of the proposed sign.

2. Existing Conditions

2.1 Surrounding Road Network

2.1.1 Barwon Heads Road

Barwon Heads Road is an arterial road under the jurisdiction of the Department of Transport and Planning (DTP) and is located within a Transport Zone 2 (TRZ2). It is a two-way road aligned generally in a north-south direction, with a posted speed limit of 60 km/h in the vicinity of the site.

Adjacent to the site, it is a divided road and is generally configured with three lanes in each direction. An indented bus bay for southbound buses is located on Barwon Heads Road, just south of Breakwater Road. In addition, kerbside bus bays are provided on both sides of Breakwater Road for both eastbound and westbound buses, approximately 50-70 west of Barwon Heads Road. It is noted that significant improvement works have been made (with completion in 2023) along Barwon Heads Road at the intersection.

Stantec understands that Barwon Heads Road predominantly provides access to towns on the southern side of the Bellarine Peninsula including Barwon Heads and Ocean Grove, and access to the developing growth areas of Charlemont and Armstrong Creek.

The road carries a mix of commuter, commercial, and tourist traffic with traffic conditions influenced by multiple signalised intersections, heavy turning movements, and intermittent access points.

Figure 4 and Figure 5 show views of Barwon Heads Road looking in a north and south direction towards the proposed sign location, respectively.

Figure 4 Barwon Heads Road – looking north towards the proposed sign location



Figure 5 Barwon Heads Road – looking south towards the proposed sign location

2.1.2 Breakwater Road

Breakwater Road is an arterial road under the management of the Department of Transport and Planning (DTP) and is located within a Transport Zone 2 (TRZ2) east of Barwon Heads Road. West of Barwon Heads Road, Breakwater Road is located within a Industrial Zone 1 (INZ1), is a two-way undivided road aligned in an east-west direction and is generally configured with two lanes in lane in each direction at the intersection. East of Barwon Heads Road, Breakwater Road is a two-way undivided road aligned in an east-west direction and is configured with a single lane in each direction.

In the vicinity of the subject area, Breakwater Road has a posted speed limit of 60 km/h.

Breakwater Road is an important arterial link in Geelong's south-east, connecting the Princes Highway/Main Road corridor with the Bellarine Highway and providing access across the Barwon River via the Breakwater Bridge. The route services the Breakwater industrial precinct as well as surrounding residential areas and functions as a key east-west connector within the Geelong road network.

Traffic conditions along Breakwater Road are influenced by a high proportion of heavy vehicles associated with industrial land uses, signalised intersections at either end of the corridor, and the capacity constraint of the river crossing. The road experiences elevated congestion during weekday peak periods, with delays most pronounced near the Princes Highway interchange and approaches to the bridge. Incidents or roadworks on Breakwater Road can have noticeable impacts on accessibility to the Bellarine Peninsula and surrounding industrial areas.

2.2 Existing Traffic Volumes

To understand the level of potential exposure (in respect to number of passing vehicles) that currently travels along Barwon Heads Road and Breakwater Road, the following traffic volumes have been sourced from the DTP Open Data website.

Table 2.1 – Existing Traffic Volumes

Road	Description	Daily Volume (vpd)	Peak Hour Volume (vph) ^[2]
Barwon Heads Road	Northbound Approaching Sign Location	30,500 vehicles ^[1]	3,050 vehicles
	Southbound Approaching Sign Location	29,500 vehicles ^[1]	2,950 vehicles
Breakwater Road	Eastbound Approaching Sign Location	19,500 vehicles ^[1]	1,950 vehicles
	Westbound Approaching Sign Location	19,000 vehicles ^[1]	1,900 vehicles

[1] Volumes are based on actual counts for the year 2019, as published by DTP.

[2] It is assumed that approx. 10% of daily traffic occur in the peak hour

2.3 Existing Signage

There is a number of existing signs in the vicinity of the proposed sign location (existing), with most signage being business identification signs. Key existing signs which will be visible at the same time as the proposed digital advertising sign are shown for northbound and southbound motorists on Barwon Heads Road in Figure 6 and Figure 7 respectively.

Figure 6 Nearby Signs for Northbound Motorists on Barwon Heads Road



Figure 7 Nearby Signs for Southbound Motorists on Barwon Heads Road



2.4 Crash Statistics

When assessing the relative safety of a location, reference is typically made to the reported crash history in the vicinity of the subject site using data sourced from DTP's Victoria road crash database. This data is usually sourced for the most recently available five-year period for crashes which result in injury or death involving road users for whom the sign may have been visible.

As previously mentioned, Barwon Heads Road operates as a high-volume urban arterial, accommodating in the order of 60,000 vehicles per day in the vicinity of the site, with approximately 30,500 northbound vehicles per day and 29,500 southbound vehicles per day under current conditions.

A review of the Department of Transport and Planning (DTP) Victoria Road Crash Database for the most recently complete five-year period (2021–2025) indicates that, despite these high daily traffic volumes and although a fatality was

recorded in November 2021 (nothing this was before the completion of the intersection upgrade in 2023), it is considered that there are no recurring pattern or trend that could be identified within the vicinity of 154–178 Barwon Heads Road that would suggest an elevated or unusual road safety risk attributable to roadside conditions or visibility constraints.

The crash history observed along the broader corridor is consistent with that typically expected on high-volume urban arterial roads and does not indicate a disproportionate safety risk at or adjacent to the subject site.

When considered together, the combination of high traffic volumes and an absence of site-specific crash clustering indicates that the road environment is functioning in a manner consistent with its intended arterial role. On this basis, the presence of signage at the subject location is not expected to materially alter driver's behaviour, compromise sightlines, or increase crash risk for road users travelling along Barwon Heads Road.

Overall, the proposal does not raise road safety concerns beyond those already inherent in the operation of a major urban arterial.

3. Proposed Sign Visibility

The proposed development comprises a double-sided digital billboard with overall face dimensions of approximately 12.48 metres (width) by 3.20 metres (height), positioned at the southeast corner of Lot 2 PS705828 at 154–178 Barwon Heads Road, Belmont. The sign is orientated to address Barwon Heads Road.

The proposed digital sign is setback from the carriageways behind the existing footpath and fencing, and is positioned clear of the road reservation. This siting ensures that the sign does not intrude into required driver sight triangles at the Breakwater Road / Barwon Heads Road signalised intersection, pedestrian crossing locations, or site access points. The elevation drawings confirm that the digital display is mounted at a height that allows clear visibility above fencing and landscaping, while remaining well below heights that would dominate the driver's field of view.

From Barwon Heads Road, the sign face is visible at mid to long-range distances, providing early recognition without requiring abrupt head or eye movement from drivers. From Breakwater Road, visibility is expected to be more limited in duration due to shorter approach distances, lower traffic speeds and proposed 95m setback south from the Breakwater Road / Barwon Heads Road intersection, however, this is consistent with the function of the road and typical billboard exposure characteristics.

4. Driver Attention and Safety Considerations

Critically, the sign is not located within the immediate decision-making zone of the intersection (i.e. stop lines, turning bays or pedestrian crossings) and is not expected to be visible 'behind' the any of the signal lanterns. Drivers approaching the intersection already encounter multiple fixed visual elements such as commercial buildings, on-site fencing, lighting infrastructure and directional signage. The proposed billboard will form part of this established visual context and is unlikely to appear unexpected or anomalous.

The dimensions and aspect ratio of the sign are consistent with contemporary roadside advertising formats along arterial roads. Its horizontal orientation aligns with the direction of travel, reducing the likelihood of sudden visual capture at close range. When viewed by traffic travelling at typical operating speeds, the sign will be encountered progressively rather than abruptly, allowing drivers to maintain primary attention on the road environment.

5. Statutory Requirements Review

5.1 Clause 73.02 – Sign Definitions

The proposed sign is a 'Electronic Major Promotion Sign' in accordance with Clause 73.02 of the Greater Geelong Planning Scheme.

5.2 Clause 52.05 – Signs

Statutory requirements for advertising signage are set out in Clause 52.05 of the Greater Geelong Planning Scheme. The requirement to consider the impact of signage on road safety is included in Clause 52.05-8.

Specifically, Clause 52.05-8 includes ten points which relate to road safety which a Responsible Authority must consider when determining whether a sign is appropriate. Table 5.1 provides an assessment of the sign against each of these '10 safety points' for considerations.

Table 5.1 – Assessment against Clause 52.05-8 of the Greater Geelong Planning Scheme

No.	Clause 52.05-8 Item	Assessment
1	Obstructs a driver's line of sight at an intersection, curve or point of egress from an adjacent property	Will not obstruct. The proposed sign is to be located within an existing commercial frontage along Barwon Heads Road and positioned so that it does <u>not</u> interfere with sight lines at nearby intersections or property access points. The sign will be setback from the carriageway and elevated above driver eye level, ensuring that visibility for turning vehicles and vehicles entering or exiting adjacent properties is maintained. The sign will not be visible 'behind' any of the signal lanterns interfering or potentially conflicting with the signal lanterns.
2	Obstructs a driver's view of a traffic control device, or is likely to create a confusing or dominating background that may reduce the clarity or effectiveness of a traffic control device	The sign will not obstruct views of traffic control devices, including regulatory, warning or guide signs along Barwon Heads Road. The sign is not proposed to be located directly behind, adjacent to, or in the immediate background of any traffic control devices, and therefore is not expected to reduce their clarity or effectiveness. As mentioned above, the sign will not be visible 'behind' any of the signal lanterns interfering or potentially conflicting with the signal lanterns.
3	Could dazzle or distract drivers due to its size, design or colouring, or it being illuminated, reflective, animated or flashing	It is understood that the sign will display static images only , with no flashing, animation or moving content. Images will be displayed for a minimum dwell time consistent with Austroads guidance to allow driver comprehension. The sign will include automatic ambient light controls to ensure luminance remains appropriate for prevailing light conditions. Subject to permit conditions controlling content and illumination, the sign is not expected to dazzle or distract drivers.
4	Is at a location where particular concentration is required, such as a high pedestrian volume intersection	Barwon Heads Road in the vicinity of the site functions as an arterial road through a commercial corridor. While pedestrian activity exists, the sign is not located at a signalised intersection, pedestrian crossing, or location requiring unusually high driver concentration. Consequently, the sign is not considered to be at a location where additional driver concentration is required beyond typical urban driving conditions.
5	Is likely to be mistaken for a traffic control device, because it contains red, green or yellow lighting, or has red circles, octagons, crosses, triangles or arrows	No, subject to appropriate content controls. The sign will not replicate the appearance, colour schemes, shapes or symbols associated with traffic control devices. This can be secured through a standard planning permit restricting advertising content. As mentioned above, importantly the sign is not expected to be visible 'behind' any of the signal lanterns interfering or potentially conflicting with the signal lanterns.
6	Requires close study from a moving or stationary vehicle in a location where the vehicle would be unprotected from passing traffic	No. The sign is intended to convey simple advertising messages and will not require close or prolonged study by drivers. Static images and adequate dwell time will ensure comprehension without encouraging unsafe driver behaviour.
7	Invites drivers to turn where there is fast-moving traffic or the sign is so close to the turning point that there is no time to signal and turn safely	No, subject to content controls. The sign will not include instructions, directional arrows, or messages that encourage last-moment turning manoeuvres. The sign location does not coincide with a turning point where drivers would be prompted to make sudden or unsafe movements.
8	Is within 100 metres of a rural railway crossing	No. There are no rural railway crossings within 100 metres of the proposed sign location.
9	Has insufficient clearance from vehicles on the carriageway	No. The sign will be mounted clear of the carriageway, with sufficient horizontal and vertical clearance from moving vehicles. The proposed mounting arrangement ensures the sign does not present a physical hazard to road users.

No.	Clause 52.05-8 Item	Assessment
10	Could mislead drivers or be mistaken as an instruction to drivers	No, subject to appropriate content controls. The sign will not display messages that could be interpreted as traffic instructions. This can be controlled through standard permit conditions restricting advertising copy and imagery.

Based on the review undertaken and stated under Table 5.1 the following should be noted:

- Appropriate planning permit conditions could be imposed to ensure that the illumination levels and content of the sign are appropriate, to comply with Item 3.
- Appropriate planning permit conditions could be imposed to ensure that the images shown on the sign comply with the requirements of Items 5, 7 and 10.
- The sign will comply with the requirements of all other Items listed above as the location of the sign will not obstruct lines of sight or present a road safety hazard. It is also not near a rural railway crossing.

6. Advertising Signs – Additional Road Safety Research

There have been a number of studies undertaken both in Australia and internationally over the last few decades regarding the impact of advertising signs, including both static and electronic signs, on road safety. The most relevant study in an Australian context is the Austroads Research Report 'AP-R420-13 Impact on Roadside Advertising on Road Safety', dated January 2013 ('Austroads report').

This report provides a summary of previous research undertaken regarding the safety impact of roadside advertising, reviews the current guidelines regarding roadside advertising within various jurisdictions throughout Australasia, and seeks to establish best practice principles regarding the minimising the impact of roadside advertising on road safety. Each of these is discussed below.

6.1 Review of Research

With regard to the safety impact of roadside advertising, Section 5.3 of the Austroads report notes that, whilst distraction is a contributor to crashes, *"studies providing direct evidence that roadside advertising plays a significant role in these distraction-based crashes are currently not available."* It also indicates that, while looking at an external object increases crash risk, *"it is reasonable to conclude that far less than 1% of all crashes and near crashes involved distraction from roadside advertising."* This compares with studies which show that in-car distractions are a contributing factor in up to 21% of crashes.

6.2 Best Practice Principles and Guidelines

With regard to whether roadside advertising should be permitted, Section 6 of the Austroads report notes the following:

"However, as noted earlier, the human factors issues are not straightforward when attempting to be definitive about what is and is not desirable from a distraction perspective. Firstly, in some environments, some level of appropriate roadside 'distraction' may be desirable. Secondly, it seems very likely that if drivers are not completely engaged by the driving environment they will spontaneously engage in other 'distracting' activities. Finally, it appears that in many cases drivers regulate their engagement with potentially distracting stimuli so that its distraction potential is controlled to some extent. This does not mean that roadside advertising is of no concern, but it does mean that there are situations where it is unlikely to compromise the integrity of the Safe System. The key is to specify the principles that are important in determining those situations."

Section 6 of the Austroads report then goes on to state some recommended principles which should be thought through, when approval for a roadside advertising sign is being considered. Section 7 of the Austroads report reviews the current guidelines regarding roadside advertising within various jurisdictions throughout Australasia. This leads to Section 9 of the Austroads report, which contains guidance recommendations on advertising signs. Many of these recommendations are similar to the principles outlined in Section 6 of the Austroads report.

Table 6.1 provides an assessment of the sign against each of the relevant principles in Section 6 of the Austroads report and guidelines in Section 9 of the Austroads report.

Table 6.1 – Assessment Against Austroads Report Principles & Recommendations

Issue	Austroads Principle	Austroads Recommendation	Assessment – Proposed Barwon Heads Road Sign
Movement	Electronic billboards should not display moving or flashing images or change in a way that produces an impression of movement.	Roadside advertising devices should not contain motion, changes in luminance or effects that create the illusion of movement.	The proposed digital billboard is intended to display static images only , with no animation, scrolling or movement effects. This approach is consistent with Austroads guidance and reduces the potential for driver distraction.
Flashing Lights	Roadside advertising devices should not contain flashing, blinking, revolving or pulsating lights.	Avoid intermittent or flashing lighting effects.	The sign will not incorporate flashing or pulsating lighting. Illumination will be steady and controlled to suit ambient lighting conditions, subject to permit conditions.
Dwell Time	The length of time for which an image is displayed should be as long as possible.	Dwell time (s) > Visibility Distance (m) ÷ (0.28 × Speed Environment km/h).	Based on the Barwon Heads Road speed environment (approximately 60–70 km/h) and available visibility distances from each approach, a minimum dwell time of 30 seconds or greater is considered appropriate. This allows adequate time for message recognition without encouraging prolonged gaze duration.
Transition Time	Transition time between images should be instantaneous.	No fading, dissolving, zooming or blank screens between messages.	Transitions between images are proposed to be instantaneous , with no visual effects that could attract undue attention.
Luminance	Electronic signs should have luminance levels no greater than static signs, and preferably lower.	Luminance should respond to ambient light levels.	Luminance can be controlled via operational settings and planning permit conditions to ensure brightness levels remain appropriate for daytime and night-time conditions, without glare or dazzle to motorists.
Information Content / Meaning	Emotional content and content mimicking traffic control devices is undesirable.	Advertising should not imitate traffic signs or provide driver instructions (e.g. STOP, GIVE WAY).	Content will be controlled to avoid use of traffic colours, symbols, commands or emotionally confronting material. This can be secured through standard permit conditions.
Colour	Advertising devices should not replicate official traffic sign colour schemes.	Avoid red, amber and green combinations resembling traffic signals.	Sign content will be managed to avoid colour combinations that resemble signal aspects or regulatory signage.
Dimensions / Shape	Advertising devices should not be shaped like traffic control devices.	Avoid shapes such as circles, octagons, triangles or arrows.	The rectangular billboard form is typical of commercial advertising and does not resemble traffic control devices.
Visual Clutter	Advertising should not be placed in visually cluttered environments.	Highly cluttered road environments should generally be avoided.	The surrounding road environment is characterised by commercial development and existing built form , with the proposed sign not adding disproportionate clutter. The sign is readable within its context and does not overwhelm existing visual elements.
Driving Demand	Advertising should not be visible at locations requiring high driver concentration.	Avoid placement near complex intersections, merges or pedestrian conflict points.	While visible from parts of the Barwon Heads Road / Breakwater Road intersection, the sign is set back from decision-making zones and does not obscure sight lines, signals or pedestrian crossings. The intersection geometry is conventional and does not exhibit unusually high cognitive demand.
Content & Quantity of Information	Informational load should be minimised.	Simple messages; no sequencing across transitions.	Advertising content is expected to be concise and capable of being comprehended within a single viewing opportunity. Sequenced messaging can be prohibited via permit condition.
Message Sequencing	Sequencing of messages should be prohibited.	Avoid messages that rely on multiple frames.	Each message will stand alone and will not require reference to previous or subsequent images.
Longitudinal Placement	Only one advertising device should be visible at one time.	Avoid clusters of signs visible simultaneously.	While other commercial signage exists in the area, the proposed sign does not form part of a sign cluster that competes directly for driver attention.
Offset	Advertising should not require significant diversion of gaze from the roadway.	Signs should be within the normal forward field of vision.	The sign is oriented to face approaching traffic and is positioned so it can be viewed within the driver's natural forward scanning envelope.
Elevation	Advertising should not be elevated to the extent it draws gaze away from the roadway.	Avoid placement within the primary hazard viewing window.	The proposed sign height allows it to be visible above fencing and vehicles without drawing the driver's gaze upward or away from the forward roadway.
Orientation / Viewing Angle	Signs should be oriented to maximise legibility across the approach distance.	Orientation should align with driver travel direction.	The billboard is oriented to suit traffic movements on Barwon Heads Road and Breakwater Road, maximising legibility during approach rather than at close proximity.

Issue	Austroads Principle	Austroads Recommendation	Assessment – Proposed Barwon Heads Road Sign
Sight Distance / Visibility	Adequate sight distance is required for comprehension.	Visibility distance should match legibility requirements.	The sign is visible over a sufficient distance on both approaches to allow comprehension without abrupt or late visual capture.
Risk & Crash History	Black spot locations should not be used for roadside advertising.	Consider crash history, speed environment and road complexity.	Based on available information, the site does not exhibit a high crash history directly attributable to visual distraction. The arterial road environment is typical for locations accommodating large-format advertising.

Having regard to the principles and recommendations set out in Austroads Research Report AP-R420-13, the proposed digital billboard demonstrates appropriate consideration of roadside safety principles. Subject to standard conditions relating to illumination, dwell time and content control, the sign is not expected to adversely affect driver behaviour or road safety and is consistent with accepted practice for arterial road environments.

7. Summary

Based on the analysis and discussions presented within this report, the following conclusions are made:

- The proposed digital sign is setback from the carriageways behind the existing footpath and fencing, and is positioned clear of the road reservation. This siting ensures that the sign does not intrude into required driver sight triangles at the intersection, pedestrian crossing locations, or site access points. The elevation drawings confirm that the digital display is mounted at a height that allows clear visibility above fencing and landscaping, while remaining well below heights that would dominate the driver's field of view.
- From Barwon Heads Road, the sign face is visible at mid to long-range distances, providing early recognition without requiring abrupt head or eye movement from drivers. From Breakwater Road, visibility is more limited in duration due to shorter approach distances and lower traffic speeds, however, this is consistent with the function of the road and typical billboard exposure characteristics.
- A review of the Department of Transport and Planning (DTP) Victoria Road Crash Database for the most recently complete five-year period (2021–2026) indicates that, despite these high daily traffic volumes and a fatality recorded in November 2021, there is no identifiable or recurring pattern of crashes within the vicinity of 154–178 Barwon Heads Road that would suggest an elevated or unusual road safety risk attributable to roadside conditions or visibility constraints. The recorded crashes are considered to be typical of a signalised intersection.
- Each advertisement will be expected to remain static for a duration of minimum 30 seconds to allow for driver comprehension.
- Subject to appropriate controls over luminance levels and content, the sign has appropriate regard for the requirements of Clause 52.05-8 of the Greater Geelong Planning Scheme for assessing whether a sign is a safety hazard.

I trust the above is clear and naturally should you have any questions, please do not hesitate to contact Herman Lai on 03 8554 7000 or myself.

Yours sincerely

Stantec Australia Pty Ltd



**Principal - Transport
Senior Road Safety Auditor**