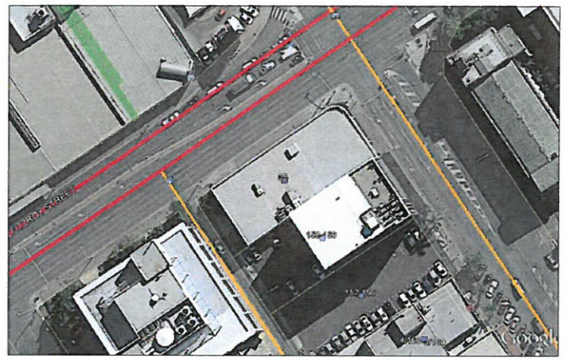
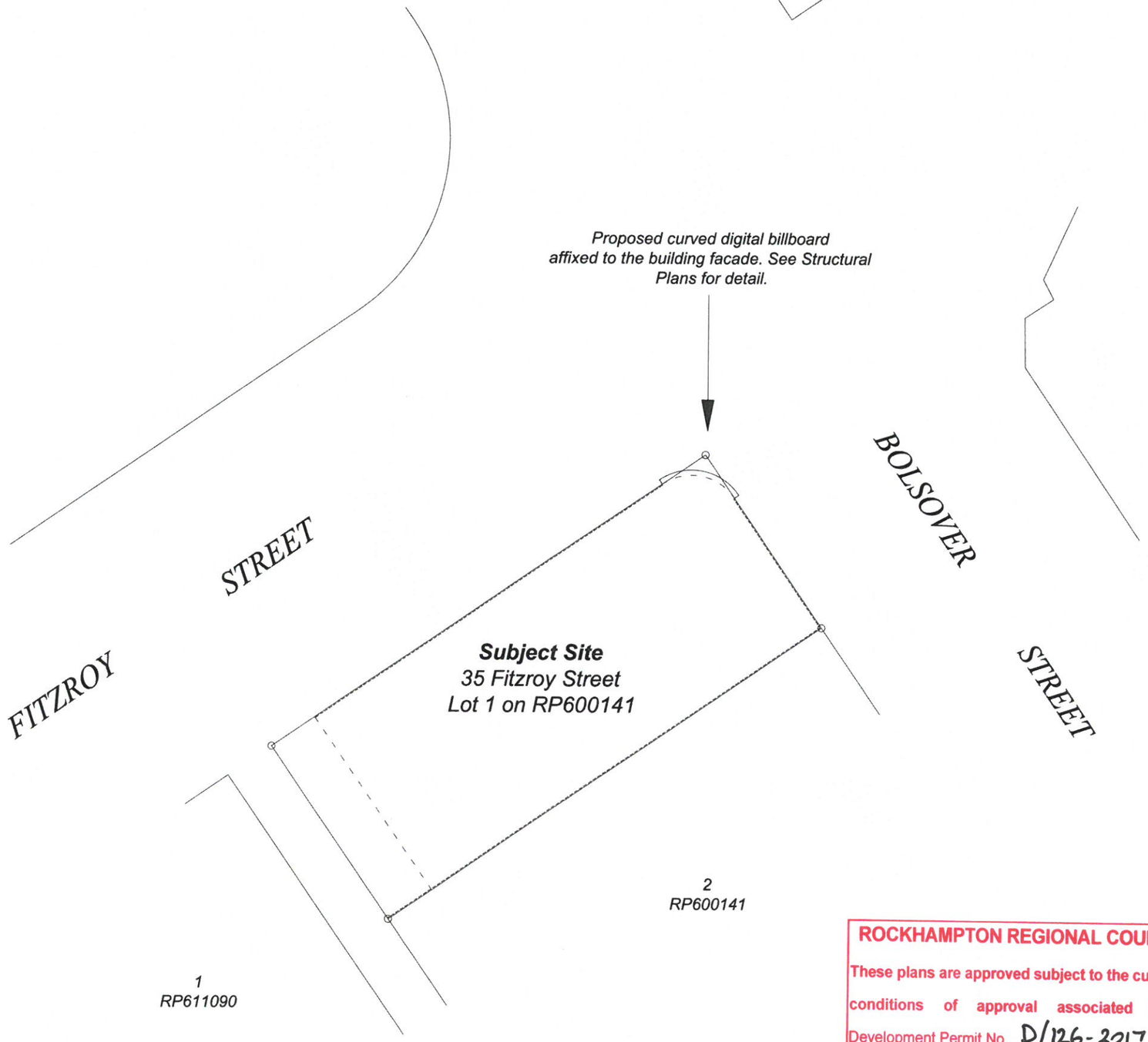


Aerial Photo
Not to scale

Proposed curved digital billboard affixed to the building facade. See Structural Plans for detail.



REV	DESCRIPTION	BY	DATE
A	DA ISSUE	BNC	10.10.17

ORIGINAL SHEET SIZE: A3 - 297mm x 420 mm

DRAWING STATUS:

DA ISSUE

CONSULTANTS:

BNCPLANNING

BNC PLANNING PTY LTD

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PO QX 5493, TOWNSVILLE QLD 4810
PH: 4724 4551
M: 0438789612
E: ENQUIRE@BNCPLANNING.COM.AU
WEB: BNCPLANNING.COM.AU

CLIENT:
PARADISE OUTDOOR ADVERTISING

PROJECT:
35 FITZROY STREET DIGITAL BILLBOARD

TITLE:
SITE PLAN

Date: 10 October 2017	Drawn: BNC
Scale (A3): As shown	Checked:
Job No.: RHRC002-17	Approved:

BNC Ref. No.	Drawing No.	Revision
RHRC-02	S01-01	A

ROCKHAMPTON REGIONAL COUNCIL

These plans are approved subject to the current conditions of approval associated with Development Permit No. D/126-2017

Dated: 14 December 2017

PRELIMINARY ONLY - NOT FOR CONSTRUCTION

NORTH EASTERN ELEVATION
(BOLSOVER STREET)

7130 TBC

1470 APPROX.

CYCLONE DEBBIE
CYCLONE WARNING ROCKHAMPTON

PROPOSED DIGITAL SIGN

7130 APPROX.

3400

BOLSOVER STREET

8250

R8150

1595

8150

1595

CYCLONE WARNING ROCKHAMPTON

ALPOLIC® (ACM) CLADDING:
FRONT; TOP; SIDES

NORTH WESTERN ELEVATION
(FITZROY STREET)

FITZROY STREET

Designed by: D.CLIFFORD	Checked by:	Approved by:	Date:	Date: 26/09/2017	
BIG SCREEN SIGNS	43 BANKS ST SEVEN HILLS QLD 4170 Ph: +61 7 3399 1425 Fax: +61 7 3399 1425 bigscreensigns.com.au				
BSV_PARAROCK09177_001					
SIZE: A	SCALE: 1:100	SHEET: 1 / 1			

TPSGROUP™
Traffic & Parking Systems

Anthony Baxter
Paradise Outdoor Advertising
P O Box 7546
Garbutt 4814

18th October 2017

ROCKHAMPTON REGIONAL COUNCIL
These plans are approved subject to the current conditions of approval associated with Development Permit No. D/126-2017
Dated: 14 December 2017

Dear Sir,

Proposed Digital Advertising Device
35 Fitzroy Street, Rockhampton
(South Corner of Fitzroy St / Bolsover St)
Traffic Engineering Assessment

1. Background

I refer to your request for a traffic engineering assessment regarding the above proposed advertising device.

I am a qualified traffic engineer with more than 30 years of experience across the entire spectrum of traffic engineering and associated technologies. I am also a Registered Professional Engineer of Queensland (RPEQ 4152).

My knowledge and experience in respect to roadside advertising has been derived from my professional traffic engineering activities in general and from expert witness roles which have required me to conduct extensive literature research regarding the matter. Consequently, I have a comprehensive knowledge of the subject and an extensive library describing traffic engineering research into the matter.

Whilst I am very familiar with Rockhampton, I have not visited the subject site and have relied on video and other photography etc. which you have provided in combination with street views etc. available through Nearmap and Google.

2. Road Management Responsibilities

Fitzroy Street is a state controlled road. Bolsover Street is controlled and managed controlled by Townsville City Council.

3. The Proposed Device

The proposal involves the construction of a high quality digital media device with a high definition LED screen, and is defined as a "Wall" sign in the planning scheme. The device will be fixed to the façade of the building on the south corner of the intersection and will 'wrap' along the curved facade to face the centre of the Fitzroy and Bolsover Street intersection.

Our understanding is that the proposed advertising device will be located as shown Fig 1 and will have the following dimensions and characteristics.

- 12.0m wide x 3.0m high LED media display (See Fig 2).
- The bottom of the device will be approximately 7.3m above road level (see Fig 2)
- The device will only be visible to motorists approaching from the north-east on Fitzroy Street and from the north-west on Bolsover Street as shown in Fig 1.

Based on our discussions, we understand that you (The Applicant) are prepared to accept the following operating conditions in a Council Approval. These conditions are based on those which have been applied to a recently approved "above awning" LED advertising sign at 233 Margaret Street in the Toowoomba CBD, and to two "above awning" LED signs at the intersection of Victoria St and Sydney St in the CBD of Mackay. (Sydney Street, Mackay is a state controlled road). TPS prepared traffic engineering assessments and reports in relation to each of these signs.

Proposed Operating Conditions which we understand The Applicant is willing to Accept

Any advertisement (including announcements and messages) displayed on the Advertising Device will:

a. *remain static at all times and not display any movement.*

b. *be legible and easily read by the intended audience.*

c. *minimise the amount of information displayed on the EDC to ensure the time required to read and understand the EDC's message is minimized.*

d. *not display sequential message sets.*

e. *only contain a single message display.*

f. *not be split to display multiple advertisements on the one electronic display component.*

g. *not imitate or emulate a traffic control device such as traffic lights, regulatory, warning or advisory traffic control signs.*

h. *not instruct drivers to perform an action such as 'Stop', 'Halt' or 'Give Way', whether through using text and/or symbols reasonably known to have such a meaning.*

i. *not invite traffic to move contrary to any traffic control device, or turn where there is fast moving traffic.*

j. *not be a traffic hazard.*

k. *not contain messages that are distractive or otherwise inconsistent with road safety.*

l. *not be easily mistaken for traffic control signals, or 'stop' or 'tail lights' of moving vehicles by containing large areas of illuminated red or green display.*

m. *always display default to a blank (black) screen in the event of a malfunction or failure of either the advertisement's EDC or related hardware/system/software.*

n. *have automatic dimming capability (ie. photoelectric cell). Sensors will be used to measure ambient brightness and dimmers will be used to control the lighting output.*

o. *ensure that any change to brightness levels will be applied during the transition time and not while an image is being displayed. This removes the risk that a motorist will be distracted by changing sign brightness.*

p. *There will be an introductory dwell time for a period of 8 weeks, during which the following dwell times will apply from the commencement of use:*
   a. *25 seconds for the first 4 weeks.*
   b. *15 seconds for the following 4 weeks*

   NOTE : The "introductory dwell time" is technically difficult to implement with no empirical or anecdotal evidence that it serves any purpose. Consequently, the Applicant would prefer that Council does not impose this Condition.

q. *After the 8 week introductory period has been completed and complied with, an ongoing 10 second dwell time may be implemented.*

   NOTE : See above.

r. *The applicant will seek approval from Council in writing prior to any changes to dwell time after the initial 8 week introductory period.*

s. *The time taken to transition from one advertisement to another will be completed within the range of 0.3 to 0.5 seconds (this timeframe is intended to minimise 'flash' distractions when there is high contrast between advertisements).*

t. *Transitioning from one advertisement to another will not utilise any effects such as 'fly in' or 'scroll' or any other type of message change effect.*

u. *Advertisements will not transition to a blank (black or white) screen.*

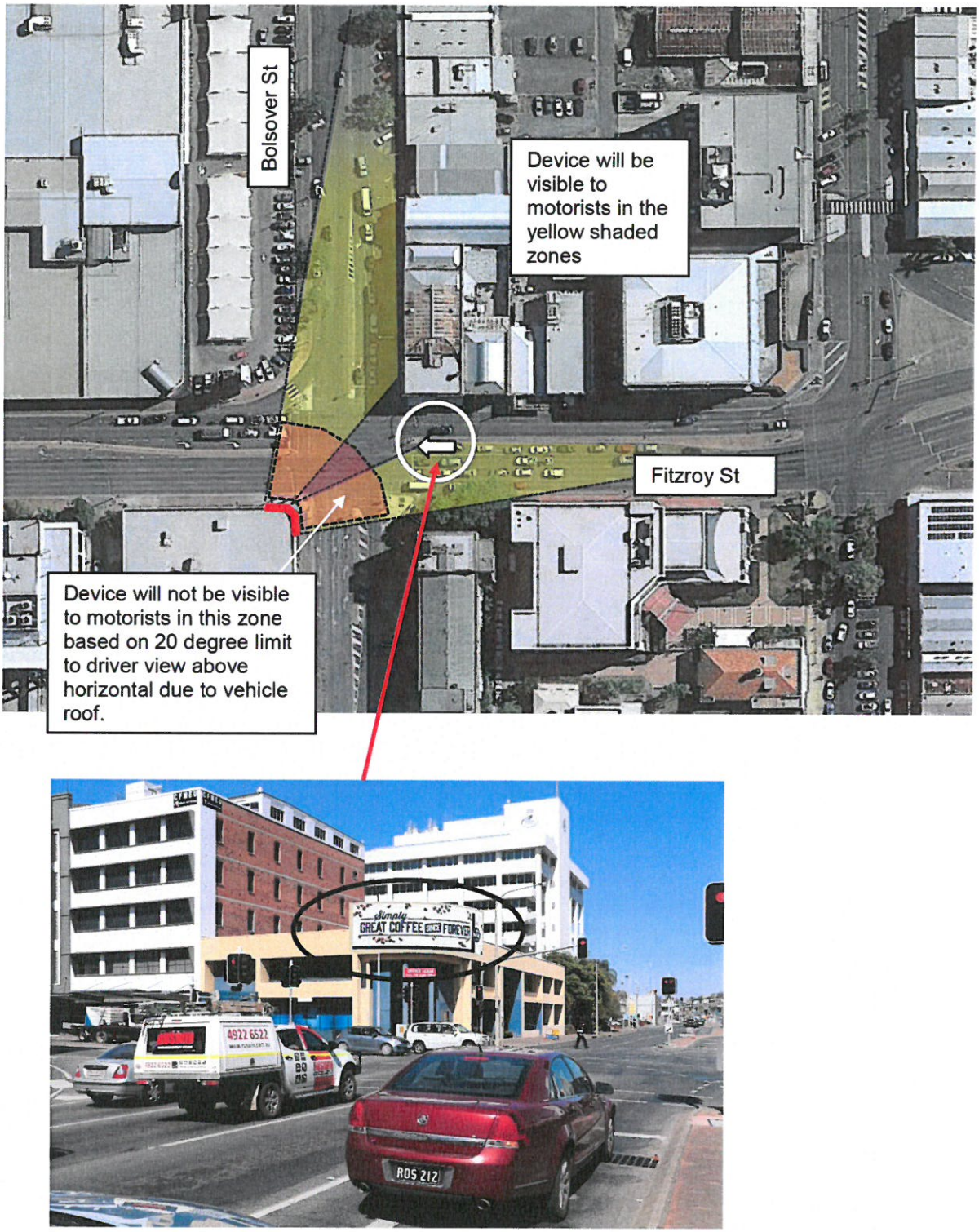
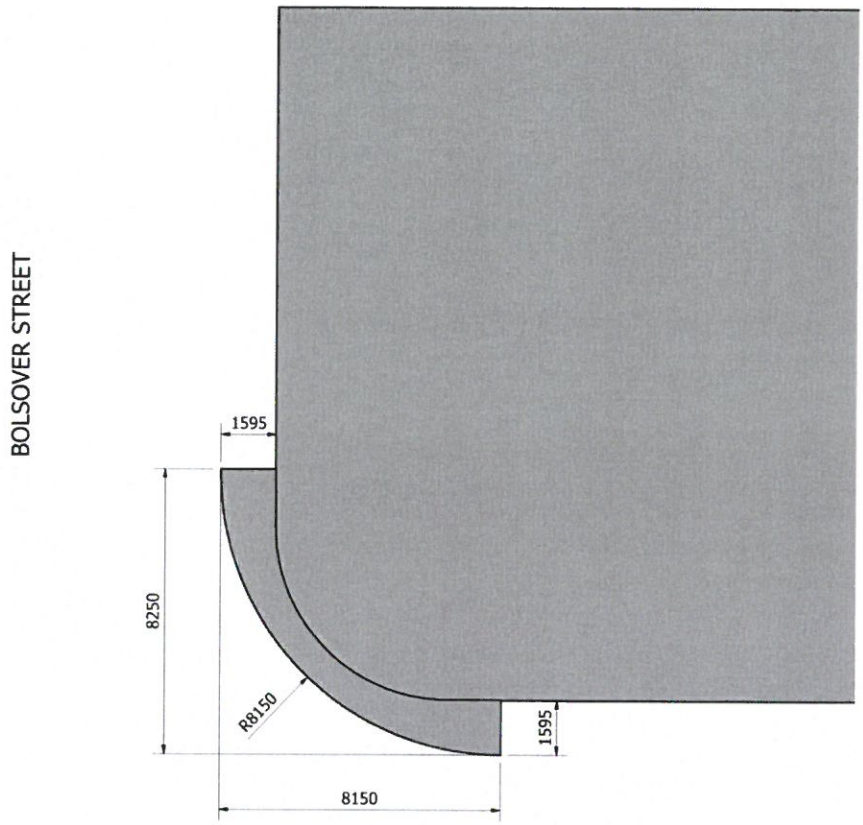
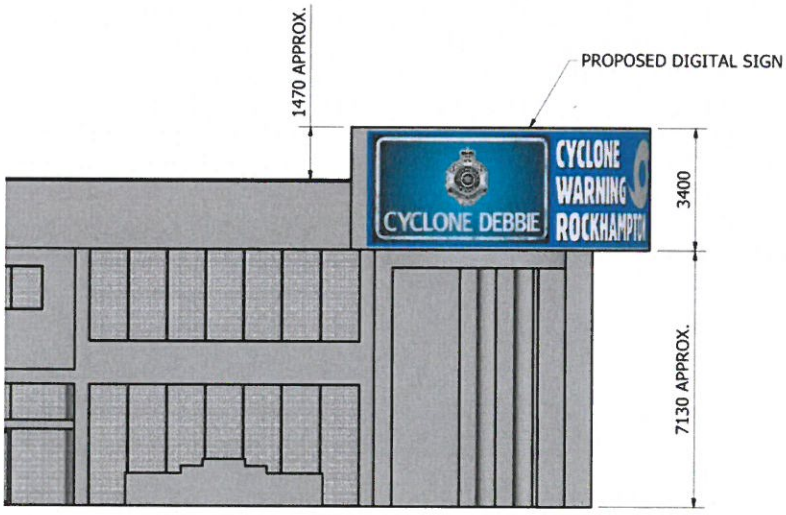


Fig 1 Proposed Location of Advertising Device and Potential Visibility to Motorists





NORTH EASTERN ELEVATION
(BOLSOVER STREET)

Fig 2 Proposed Advertising Device Dimensions etc.

4. Relevant Traffic Engineering References

In our view, the following references are relevant to making a traffic engineering assessment of the proposed device.

4.1 BCC Technical Guideline TG01 (Advertisements with Illumination &/or Electronic Display Components (EDC))

The BCC Technical Guideline is relevant in view of the considerable experience over many years which Brisbane City Council has in assessing and managing roadside advertising devices, particularly in CBD locations.

The BCC Technical Guideline states the following in Section 4.1 of the Guide.

If a proposed location is reasonably suspected by the assessing officer to:

a) be located either within:

- *a driver's field of vision behind any primary or secondary traffic signals, **or**;*
- *a CRDS (Critical Road Decision Section) or on a curve where the geometry, viewing angle or other factors make it undesirable;*

and

b) the proposed device

- *has a total EDC display extent area > 0.6m2, **or**;*
- *has display content changes more often than hourly;*

then the assessing officer must gain referral advice from a BCC Transport Planning and Strategy ('TPS') as to their approval of the proposal & to report whether the location:

1) *is confirmed as being within a CRDS, or on a curve where the geometry or viewing angle or other factors make this location undesirable;*
2) *has an 'above average crash rate risk (CRR)', or a 'high KSI rate';*
3) *has any other critical relevant safety issues known to BCC;*
4) *whether a condition is required for data logging evidence to be provided to BCC when requested for evidence of compliance (standard data format e.g. csv).*

In this instance the location of the proposed advertising sign is within a CRDS given that the proposed sign is to be located directly adjacent to the Fitzroy St / Bolsover St intersection.

State Accident Records (to August 2017) indicate no accidents have been reported at the subject intersection since 2006.

4.2 DTMR Roadside Advertising Guide

Whilst the DTMR Guide is based on road management and road safety principles that are generally applicable throughout the road network, the Guide was not prepared with any particular objective to apply the Guide into road locations within the core of a CBD or similar inner urban commercial centres. Whilst Fitzroy Street is a state controlled road it is not appropriate to manage the road without regard to the environment in which the Fitzroy St / Bolsover St intersection is located.

Further, it should be noted that the DTMR Guide is not based on any empirical evidence that roadside advertising represents a road safety hazard. Nor is there any empirical evidence from international research to support that proposition. However, it remains logical, sensible and reasonable that any roadside advertising proposal should be considered with regard to the potential for it to cause a road safety hazard.

Notwithstanding the above matters, the DTMR Guide describes the need to consider the following primary matters of general relevance to making a traffic engineering assessment of a device proposal.

1. ***Site selection*** *- which is comprised of:*

    a. *the* ***lateral placement*** *of Advertising Devices (which influences the hazard potential for an errant vehicle and the effectiveness of official traffic signs)*

    b. *the* ***longitudinal (driver distraction control) placement*** *of Advertising Devices relative to designated traffic situations and official traffic signs, road features and other Advertising Devices (which influences sight distances and driver distraction).*

2. ***Physical characteristics*** *of Advertising Devices - including shape, illumination, colour and font size (which can influence the extent of driver distraction or confusion).*

The DTMR Supplementary Guideline for the Management of Electronic Billboard Advertising Devices specifies the following requirements for "electronic" devices.

- They are to be located clear of the restriction, distraction and restriction notice areas identified in Figures N1, N2 and N3 of the DTMR Guide, including any additional restrictions due to crash history.

- There is to be adequate advance visibility to view and read the electronic billboard. The DTMR Guide describes that 3 seconds or more of travel time is required.

- They are not to form a background to, or be in close visual proximity with, traffic signals or railway signals.

- They are not to obstruct a driver's line of sight to official traffic signs, exit ramps, on-ramps, intersections, other decision making / traffic conflict areas or other road users (e.g. pedestrians).

5. Applying the References to the Proposed Sign

5.1 Proximity to the Intersection

The proposed device will be located in a Critical Road Design Section (CRDS as defined by BCC) due to its location above a signalised intersection.

The DTMR Guide specifies that an electronic device should not be located at less than 65m from an intersection in a 60kph zone. This proposed device does not satisfy this standard.

5.2 Road Accident History

State Accident Records (to August 2017) indicate no accidents have been reported at the subject intersection since 2006.

The State Record does not indicate any evidence that the subject intersection has been experiencing an unusual accident rate which should adversely affect granting an approval.

5.3 The Potential For the Sign to Obscure Traffic Signals

Fig 3 shows an analysis of the zones in which the proposed advertising sign could potentially form a 'backdrop' to traffic signals.

The analysis shows that there are two relatively small zones in the intersection approaches in which the proposed device could potentially form a backdrop to any part of a signal lantern, even to a minor degree. In both instances, the extent of the zone is insignificant such that the 'backdrop' would only occur for a very brief moment as the motorist passed through the zone.

5.4 Potential to Obstruct a Motorist's View of Traffic Signals and Signs etc.

The analysis shown in Fig 3 indicates that there is no potential for the device to obstruct a motorist's view of a signal or sign or any other "important" major traffic control device.

5.5 Advance Visibility

Fig 2 shows that the device will be visible to motorists approaching in Fitzroy Street over a distance of 100m or more, depending on which lane the motorist is travelling.. Motorists approaching from the Bolsover Street approach will be able to observe the sign from more than 120m.

Based on the above, at 60kph a motorist will be able to observe the proposed device for a period of approximately 5.5 seconds or more in the Fitzroy Street approach and more than 7 seconds from the Bolsover Street approach. These periods exceed the 3 second minimum duration described in the DTMR Guide.

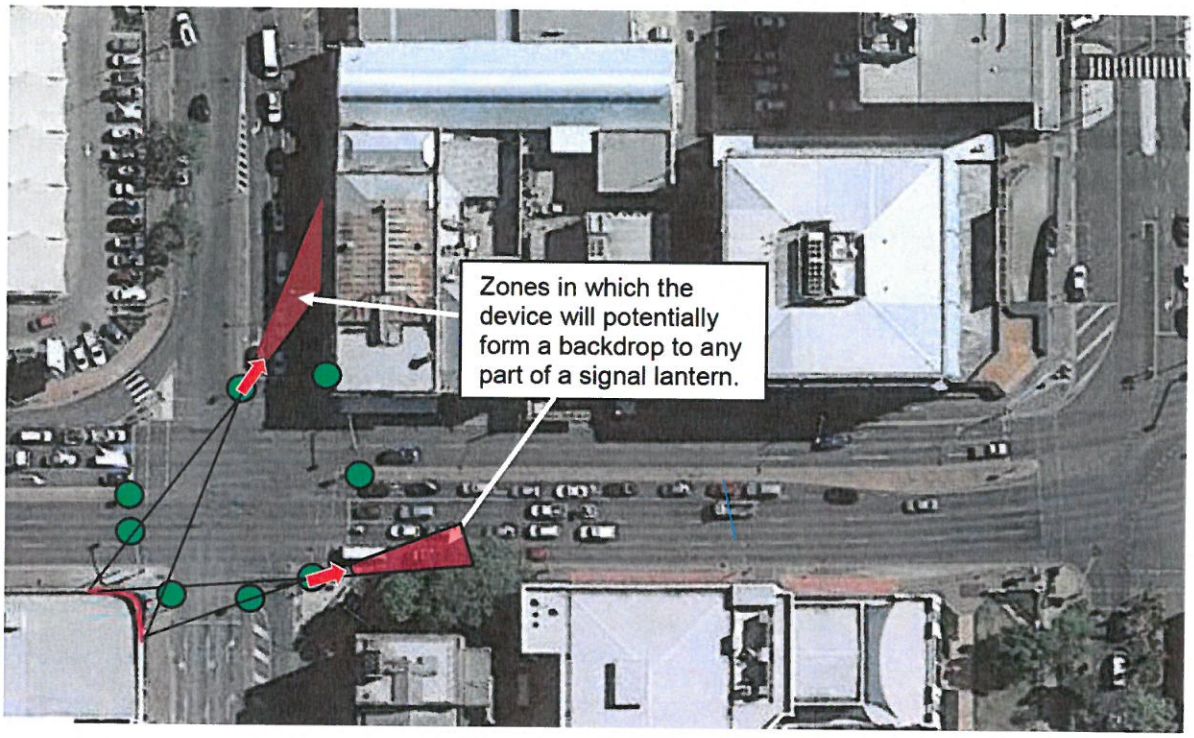


Fig 3

Estimated Zones in Which the Part of the Subject Device Potentially Forms a Backdrop to Signals

Note : The above zones are based on the bottom and top of Lanterns being at 3.0m and 4.5m respectively above the intersection, and a driver eye height of 1.15m.

6. The Potential for the Sign to Distract a Motorist

Australian (Ref : Billboards and Traffic Crashes, Report by Andreassen, September 2000) and overseas research indicates that "attention conspicuity" is one of the primary factors to consider in assessing the potential for a roadside advertising sign to distract a motorist away from a driving task.

That is ;

> "Attention Conspicuity" – The capacity of a sign to distract a motorist or pedestrian involuntarily from another subject.

The conspicuity of an object is a function of the environment in which it is placed. For example, a flashing light in an environment of flashing lights will have a low attention conspicuity, whereas a flashing light in a paddock at night will have a high attention conspicuity. This effect of environment is one reason why researchers have found it difficult to conduct research into the subject of roadside signage because of the difficulty of isolating the effect of signage from the ambient effects of the environment in which the signage is placed. Virtually all the research documents acknowledge this problem in empirical (or field) research.

The principle of conspicuity is expressed differently in a FHWA document in terms of "distracting stimuli". In the FHWA document, "distracting stimuli" are separated into the following two categories. (Ref : Research Review of Potential Safety Effects of Electronic Billboards On Driver Attention And Distraction, Office of Safety Research and Development, US Federal Highway Administration, September 2001)

- The unexpected event (or distraction) that results in an **involuntary** motorist reaction which potentially distracts the motorist from a more important driving task or set of circumstances. This reaction is typically caused by a light flash or similar unexpected vision.

- More subtle distraction of a less surprising quality which allows the driver to **voluntarily** decide on whether to divert attention to a sign, when and for how long etc.

Again, the above two factors can be applied into an assessment of the potential for a pedestrian to be distracted from a road crossing task.

In urban environments there are many factors which compete for the motorist's or pedestrian's attention. In any environment motorists and pedestrians must decide what are the most critical factors to ensure safety. In a densely developed and visually noisy environment such as an Australian retail/commercial area or CBD, signs characteristically have a low attention conspicuity due to the many other visual elements of the environment with which signs compete.

The FHWA document supports giving consideration to the visual/environmental context in which the sign will operate and the resultant level of resultant attention conspicuity of the sign. IN this instance the device is to be located in a retail/commercial environment in which other significant advertising signs exist, including a large shopping centre sign which directly addresses the subject intersection.

The following research conducted in the US in 2003 was aimed specifically at addressing the impact of signs on motorist behaviour having regard to the visual environment in which signs might operate.

> **Driving Performance in the Presence and Absence of Billboards**
> Prepared for the Foundation for Outdoor Advertising Research and Education
> By the Center for Crash Causation and Human Factors
> December 15, 2003

The US research was comprehensive in observing driver behaviour using in-car video whilst travelling along routes with a wide variation of roadside advertising signs. Approximately 10% of signs which "participated" in the research were classed as "electronic".

The overall finding from the US research was that ;

> *"The presence of billboards does not cause a change in driver behaviour, in terms of visual behaviour, speed maintenance, or lane keeping."*
>
> *"... neither visual behaviour nor driving behaviour changes, even in the presence of the most visually attention-getting billboards."*

The Accident Research Unit at the University of Nottingham (Ref : Attraction and Distraction of Attention with Roadside Advertisements, 2006) studied the difference in the effect of raised level and street level advertising of the same size on attracting the attention of drivers under different driving tasks. The study concluded that a hazard is more likely to be introduced by a sign at street level than a raised level advertisement.

In summary, all available Australian and international research has been unable to prove the hypothesis that roadside advertising of any nature and design represents a road safety hazard. In the absence of such proof the only rational conclusion is to draw is that no relationship exists. The longevity of experience with roadside advertising adjacent to major traffic routes and intersections would surely have at least produced anecdotal evidence if such a relationship existed. This has not been the case. The findings (or lack thereof) relating to motorists can equally be applied into the potential for advertising signs to affect pedestrian safety as the factors affecting the potential for signs to distract motorists and pedestrians from particular tasks are identical.

In addition to the above research findings, we are aware that there is no evidence that digital billboards mounted at St Kilda Junction and other locations in Melbourne for many years have resulted in any increase in vehicle or pedestrian accidents. Similarly, there is no evidence I am aware of which suggests a road safety hazard associated with digital advertising devices already operating in Rockhampton, Gladstone, Bundaberg, Toowoomba and Townsville.

Having regard to the international research and lack of even anecdotal evidence that advertising devices are a road safety hazard, it is our conclusion that the proposed sign will not have any effect on the safety of motorists or pedestrians at the Fitzroy St / Bolsover St intersection, particularly given the elevation of the sign and the retail/commercial environment in which the sign will be placed.

7. Conclusions

In conclusion, we provide the following assessment.

In our view the DTMR Guide for assessing the potential road safety effects of roadside advertising was not prepared with an expectation that it would be applied into CBD locations where the traffic movement function of roads and streets is subordinate to other functions such as retail & commercial activities, amenity etc.

The equivalent BCC guide effectively requires that expert advice be obtained with respect to the safety of a proposed advertising sign if the sign will be behind traffic signals or located within a CRDS (Critical Road Decision Section). The fact that a sign may qualify in both these respects does not necessarily mean that a sign will not be acceptable under the BCC guide, but merely that the potential for the sign to represent a road safety hazard should be investigated.

In this case the proposed sign will only very briefly form a backdrop to a signal lantern in the Fitzroy and Bolsover intersection approaches, to the minor extent that the 'backdrop' is unlikely to be apparent to a motorist passing through the intersection.

The proposed device is located within a Critical Road Decision Section (CRDS) in the form of the intersection. However, accident data does not indicate that the intersection is the subject of crash or pedestrian accident history which should adversely affect an assessment of the proposed device.

The advertising device will be visible to motorists in the Fitzroy Street and Bolsover Street approaches for periods which exceed the minimum desirable period described in the DTMR Guide.

The Applicant is prepared to accept identical or similar Conditions which specify how the device is to operate and appear to those which were applied to recent Approvals regarding digital advertising devices on a state controlled road in the CBD of Mackay.

Based on the above findings and other considerations described in this report, we are of the view that the proposed advertising device will not represent a road safety hazard and should be approved with respect to traffic engineering considerations.

Glen Holdsworth (RPEQ 4152)
Specialist Transport / Traffic / Parking Engineer
Ref : TPS190Rep1