



## Development Cost

### Estimate cost of development\*

If the permit allows **development**, estimate the cost difference between the development allowed by the permit and the development to be allowed by the amended permit.

Cost of proposed amended development:


–

Cost of the permitted development:

=

Cost difference (+ or –):

Insert 'NA' if no development is proposed by the permit.

 You may be required to verify this estimate.


## Existing Conditions

### Describe how the land is used and developed now \*

For example, vacant, three dwellings, medical centre with two practitioners, licensed restaurant with 80 seats, grazing.

Have the conditions of the land changed since the time of the original permit application?  Yes  No

If yes, please provide details of the existing conditions.


 Provide a plan of the existing conditions if the conditions have changed since the time of the original permit application. Photos are also helpful.

## Title Information

### Encumbrances on title \*

Does the proposal breach, in any way, an encumbrance on title such as a restrictive covenant, section 173 agreement or other obligation such as an easement or building envelope?

- Yes (If 'yes' contact council for advice on how to proceed before continuing with this application.)
- No
- Not applicable (no such encumbrance applies).

 Provide a full, current copy of the title for each individual parcel of land forming the subject site. The title includes: the covering 'register search statement', the title diagram and the associated title documents, known as 'instruments', for example, restrictive covenants.

## Applicant and Owner Details i

Provide details of the applicant and the owner of the land.

### Applicant \*

The person who wants the permit.

Please provide at least one contact phone number \*

Where the preferred contact person for the application is different from the applicant, provide the details of that person.

### Owner \*

The person or organisation who owns the land

Where the owner is different from the applicant, provide the details of that person or organisation.

Name:		
Title:	First Name:	Surname:
Organisation (if applicable):		
Postal Address:		If it is a P.O. Box, enter the details here:
Unit No.:	St. No.:	St. Name:
Suburb/Locality:	State:	Postcode:


<b>Contact information for applicant OR contact person below</b>	
Business phone:	Email:
Mobile phone:	Fax:

<b>Contact person's details*</b>		Same as applicant <input type="checkbox"/>
Name:		
Title:	First Name:	Surname:
Organisation (if applicable):		
Postal Address:		If it is a P.O. Box, enter the details here:
Unit No.:	St. No.:	St. Name:
Suburb/Locality:	State:	Postcode:

Name:		Same as applicant <input type="checkbox"/>
Title:	First Name:	Surname:
Organisation (if applicable):		
Postal Address:		If it is a P.O. Box, enter the details here:
Unit No.:	St. No.:	St. Name:
Suburb/Locality:	State:	Postcode:
Owner's Signature (Optional):	Date:	day / month / year

## Declaration i

### This form must be signed by the applicant\*

 Remember it is against the law to provide false or misleading information, which could result in a heavy fine and cancellation of the permit.

I declare that I am the applicant; that all the information in this application is true and correct; that all changes to the permit and plan have been listed as part of the amended proposal and that the owner (if not myself) has been notified of the permit application.

Signature: 	Date:	day / month / year
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## Need help with the Application? i

If you need help to complete this form, read More Information at the end of this form or contact Council's planning department. General information about the planning process is available at [planning.vic.gov.au](http://planning.vic.gov.au)

Contact Council's planning department to discuss the specific requirements for this application and obtain a checklist. Insufficient or unclear information may delay your application.

### Has there been a pre-application meeting with a council planning officer?

<input type="radio"/> No	<input type="radio"/> Yes	If 'Yes', with whom?:	
		Date:	day / month / year

---

## Checklist

Have you:

- Filled in the form completely?
- Paid or included the application fee?
- Attached all necessary supporting information and documents?
- Completed the relevant council planning permit checklist?
- Signed the declaration above?



Most applications require a fee to be paid. Contact Council to determine the appropriate fee.

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## Lodgement

Lodge the completed and signed form and all documents with:

Maribyrnong City Council  
PO Box 58  
Footscray VIC 3011  
Cnr Napier & Hyde Streets  
Footscray VIC 3011

**Contact information:**

Phone: (03) 9688 0200  
Email: [email@maribyrnong.vic.gov.au](mailto:email@maribyrnong.vic.gov.au)  
DX: 81112

**Deliver application in person, by post or by electronic lodgement.**

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# MORE INFORMATION

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## The Land

It is important that your application to amend a planning permit includes details of the land, consistent with the Planning Permit. Refer to a copy of your Planning Permit, when completing the street address section of the form.

Also ensure you provide up-to-date details for the formal land description, using the current copy of the title.

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## Planning Permit Details

You must identify the permit being amended by specifying the permit number. This can be found at the beginning of the permit.

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## The Amended Proposal

First select the type of amendment being applied for. This may include an amendment to:

- the use and/or development allowed by the permit
- conditions of the permit.
- plans approved by the permit.
- any other document approved by the permit.

Then describe the changes proposed to the permit, including any changes to the plans or other documents included in the permit.

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## Development Cost

In most instances an application fee will be required. This fee must be paid when you lodge the application. The fee is set down by government regulations.

To help Council calculate the application fee, you must provide an accurate cost estimate of the proposed development to be allowed by the amended permit and the difference between the development allowed by the permit.

Council may ask you to justify your cost estimates. Costs are required solely to allow Council to calculate the permit application fee.

Fees are exempt from GST.

The cost difference is calculated as follows:

Development cost related to the Application to Amend a Planning Permit	–	Development cost related to the Application for Planning Permit	=	Cost Difference
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If the estimated cost of the proposed amended development is less than the estimated cost of the development allowed by the permit, show it as a negative number.

### Example 1

Where the cost of the development to be allowed by the amended permit is lower than the cost of the development allowed by the permit:

$$\$180,000 - \$195,000 = -\$15,000$$

### Example 2

Where the cost of the development to be allowed by the amended permit is higher than the cost of the development allowed by the permit:

$$\$250,000 - \$195,000 = \$55,000$$

▲ Costs for different types of development can be obtained from specialist publications such as Cordell Housing: Building Cost Guide or Rawlinsons: Australian Construction Handbook.

▲ Contact the Council to determine the appropriate fee. Go to [planning.vic.gov.au](http://planning.vic.gov.au) to view a summary of fees in the Planning and Environment (Fees) Regulations.

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## Existing Conditions

### How should land be described?

If the conditions of the land have changed since the time of the original permit application, you need to describe, in general terms, the way the land is used now, including the activities, buildings, structures and works that exist (for example, single dwelling, 24 dwellings in a three-storey building, medical centre with three practitioners and 8 car parking spaces, vacant land).

Please attach to your application a plan of the existing conditions of the land, if the conditions have changed since the time of the original permit application. Check with the local Council for the quantity, scale and level of detail required.

It is also helpful to include photographs of the existing conditions.

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## Title Information

### What is an encumbrance?

An 'encumbrance' is a formal obligation on the land, with the most common type being a 'mortgage'. Other common examples of encumbrances include:

- **Restrictive Covenants:** A 'restrictive covenant' is a written agreement between owners of land restricting the use or development of the land for the benefit of others, (eg. a limit of one dwelling or limits on types of building materials to be used).
- **Section 173 Agreements:** A 'section 173 agreement' is a contract between an owner of the land and the Council which sets out limitations on the use or development of the land.
- **Easements:** An 'easement' gives rights to other parties to use the land or provide for services or access on, under or above the surface of the land.
- **Building Envelopes:** A 'building envelope' defines the development boundaries for the land.

Aside from mortgages, the above encumbrances can potentially limit or even prevent certain types of proposals.

### What documents should I check to find encumbrances?

Encumbrances are identified on the title (register search statement) under the header 'encumbrances, caveats and notices'. The actual details of an encumbrance are usually provided in a separate document (instrument) associated with the title. Sometimes encumbrances are also marked on the title diagram or plan, such as easements or building envelopes.

### What about caveats and notices?

A 'caveat' is a record of a claim from a party to an interest in the land. Caveats are not normally relevant to planning applications as they typically relate to a purchaser, mortgagee or chargee claim, but can sometimes include claims to a covenant or easement on the land. These types of caveats may affect your proposal.

Other less common types of obligations may also be specified on title in the form of 'notices'. These may have an effect on your proposal, such as a notice that the building on the land is listed on the Heritage Register.

### What happens if the proposal contravenes an encumbrance on title?

Encumbrances may affect or limit your proposal or prevent it from proceeding. Section 61(4) of the *Planning and Environment Act 1987* for example, prevents a Council from granting a permit if it would result in a breach of a registered restrictive covenant. If the proposal contravenes any encumbrance, contact the Council for advice on how to proceed.

You may be able to modify your proposal to respond to the issue. If not, separate procedures exist to change or remove the various types of encumbrances from the title. The procedures are generally quite involved and if the encumbrance relates to more than the subject property, the process will include notice to the affected party.

▲ You should seek advice from an appropriately qualified person, such as a solicitor, if you need to interpret the effect of an encumbrance or if you seek to amend or remove an encumbrance.

### Why is title information required?

Title information confirms the location and dimensions of the land specified in the planning application and any obligations affecting what can be done on or with the land.

As well as describing the land, a full copy of the title will include a diagram or plan of the land and will identify any encumbrances, caveats and notices.

### What is a 'full' copy of the title?

The title information accompanying your application must include a 'register search statement' and the title diagram, which together make up the title. In addition, any relevant associated title documents, known as 'instruments', must also be provided to make up a full copy of the title.

Check the title to see if any of the types of encumbrances, such as a restrictive covenant, section 173 agreement, easement or building envelope, are listed. If so, you must submit a copy of the document (instrument) describing that encumbrance. Mortgages do not need to be provided with planning applications.

▲ Some titles have not yet been converted by Land Registry into an electronic register search statement format. In these earlier types of titles, the diagram and encumbrances are often detailed on the actual title, rather than in separate plans or instruments.

### Why is 'current' title information required?

It is important that you attach a current copy of the title for each individual parcel of land forming the subject site. 'Current' title information accurately provides all relevant and up-to-date information.

Some councils require that title information must have been searched within a specified time frame. Contact the Council for advice on their requirements.

▲ Copies of title documents can be obtained from Land Registry: Level 10, 570 Bourke Street, Melbourne; 03 8636 2010; [www.landata.vic.gov.au](http://www.landata.vic.gov.au) – go direct to "titles & property certificates".

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## Applicant and Owner Details

This section provides information about the permit applicant, the owner of the land and the person who should be contacted about any matters concerning the permit application.

The applicant is the person or organisation that wants the permit. The applicant can, but need not, be the contact person.

In order to avoid any confusion, the Council will communicate only with the person who is also responsible for providing further details. The contact may be a professional adviser (e.g. architect or planner) engaged to prepare or manage the application. To ensure prompt communications, contact details should be given.

Check with Council how they prefer to communicate with you about the application. If an email address is provided this may be the preferred method of communication between Council and the applicant/contact.

The owner of the land is the person or organisation who owns the land at the time the application is made. Where a parcel of land has been sold and an application made prior to settlement, the owner's details should be identified as those of the vendor. The owner can, but need not, be the contact or the applicant.

See **Example**.

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## Declaration

The declaration should be signed by the person who takes responsibility for the accuracy of all the information that is provided. This declaration is a signed statement that the information included with the application is true and correct at the time of lodgement.

The declaration can be signed by the applicant or owner. If the owner is not the applicant, the owner must either sign the application form or must be notified of the application which is acknowledged in the declaration.

▲ Obtaining or attempting to obtain a permit by wilfully making or causing any false representation or declaration, either orally or in writing, is an offence under the *Planning and Environment Act 1987* and could result in a fine and/or cancellation of the permit.

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## Need help with the Application?

If you have attended a pre-application meeting with a Council planner, fill in the name of the planner and the date, so that the person can be consulted about the application once it has been lodged. This will help speed up the processing of your application.

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## Checklist

You should provide sufficient supporting material with the application to describe the proposal in enough detail for the council to make a decision. It is important that copies of all plans and information submitted with the application are legible.

There may be specific application requirements set out in the planning scheme for the use or development you propose. The application should demonstrate how these have been addressed or met.

The checklist is to help ensure that you have:

- provided all the required information on the form
- included payment of the application fee
- attached all necessary supporting information and documents
- completed the relevant Council planning permit checklist
- signed the declaration on the last page of the application form.

▲ The more complete the information you provide with your application, the sooner Council will be able to make a decision.

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## Lodgement

The application must be lodged with the Council responsible for the planning scheme in which the land affected by the application is located. In some cases the Minister for Planning or another body is the responsible authority instead of Council. Ask the Council if in doubt.

Check with council how they prefer to have the application lodged. For example, they may have an online lodgement system, prefer email or want an electronic and hard copy. Check also how many copies of plans and the size of plans that may be required.

Contact details are listed in the lodgement section on the last page of the form.

▲ **Approval from other authorities:** In addition to obtaining a planning permit, approvals or exemptions may be required from other authorities or Council departments. Depending on the nature of your proposal, these may include food or health registrations, building permits or approvals from water and other service authorities.

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## Applicant and Owner Details i

Provide details of the applicant and the owner of the land.

### Applicant \*

The person who wants the permit.

Please provide at least one contact phone number \*

Where the preferred contact person for the application is different from the applicant, provide the details of that person.

### Owner \*

The person or organisation who owns the land

Where the owner is different from the applicant, provide the details of that person or organisation.

Name:		
Title: <b>MR</b>	First Name: <b>LEN</b>	Surname: <b>BROWNING</b>
Organisation (if applicable): <b>RESPONSIBLE DEVELOPERS PTY LTD</b>		
Postal Address: <small>If it is a P.O. Box, enter the details here:</small>		
Unit No.: <b>4</b>	St. No.: <b>12</b>	St. Name: <b>ARDOUR LANE</b>
Suburb/Locality: <b>WYCHEPROOF</b>	State: <b>VIC</b>	Postcode: <b>3527</b>

<b>Contact information for applicant OR contact person below</b>	
Business phone: <b>9123 4567</b>	Email: <b>tcpl@bigpond.net.au</b>
Mobile phone: <b>0412 345 678</b>	Fax: <b>9123 4567</b>

<b>Contact person's details*</b>		Same as applicant <input type="checkbox"/>
Name:		
Title: <b>MR</b>	First Name: <b>ANDREW</b>	Surname: <b>HODGE</b>
Organisation (if applicable): <b>TOWN PLANNING CONSULTANTS</b>		
Postal Address: <small>If it is a P.O. Box, enter the details here:</small>		
Unit No.:	St. No.:	St. Name: <b>PO BOX 111</b>
Suburb/Locality: <b>PARKDALE</b>	State: <b>VIC</b>	Postcode: <b>3194</b>

<b>Owner *</b>		Same as applicant <input checked="" type="checkbox"/>
Name:		
Title:	First Name:	Surname:
Organisation (if applicable):		
Postal Address: <small>If it is a P.O. Box, enter the details here:</small>		
Unit No.:	St. No.:	St. Name:
Suburb/Locality:	State:	Postcode:
Owner's Signature (Optional):	Date: day / month / year	

## REGISTER SEARCH STATEMENT (Title Search) Transfer of Land Act 1958

Page 1 of 2

VOLUME 10815 FOLIO 347

Security no : 124118461706E  
Produced 23/09/2024 09:39 AM

### LAND DESCRIPTION

Lot 6 on Registered Plan of Strata Subdivision 028786X.  
PARENT TITLE Volume 09814 Folio 340  
Created by instrument SP028786X/D1 13/07/2004

### REGISTERED PROPRIETOR

Estate Fee Simple  
Sole Proprietor  
SABRI BEYZADE of 86 GORDON STREET FOOTSCRAY VIC 3011  
AD432499C 11/02/2005

### ENCUMBRANCES, CAVEATS AND NOTICES

MORTGAGE AW255176Y 10/11/2022  
WESTPAC BANKING CORPORATION

CAVEAT as to part AK653374E 14/10/2013  
Caveator  
VODAFONE NETWORK PTY LTD  
Grounds of Claim  
LEASE WITH THE FOLLOWING PARTIES AND DATE.  
Parties  
THE REGISTERED PROPRIETOR(S)  
Date  
14/10/2013  
Estate or Interest  
LEASEHOLD ESTATE  
Prohibition  
UNLESS AN INSTRUMENT IS EXPRESSED TO BE SUBJECT TO MY/OUR CLAIM  
Lodged by  
K&L GATES (17)  
Notices to  
K&L GATES of LEVEL 25 525 COLLINS STREET MELBOURNE VIC 3000

CAVEAT as to part AX206779K 30/08/2023  
Caveator  
TELSTRA CORPORATION LTD  
Grounds of Claim  
LEASE WITH THE FOLLOWING PARTIES AND DATE.  
Parties  
THE REGISTERED PROPRIETOR(S)  
Date  
11/01/2023  
Estate or Interest  
LEASEHOLD ESTATE  
Prohibition  
UNLESS I/WE CONSENT IN WRITING  
Lodged by  
CORNWALLS  
Notices to  
CORNWALLS of LEVEL 4 380 COLLINS STREET MELBOURNE VIC 3000

Any encumbrances created by Section 98 Transfer of Land Act 1958 or Section 24 Subdivision Act 1988 or Section 12 Strata Titles Act 1967 and any other encumbrances shown or entered on the plan set out under DIAGRAM LOCATION below.





**REGISTER SEARCH STATEMENT (Title Search) Transfer of  
Land Act 1958**

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**DIAGRAM LOCATION**

SEE SP028786X FOR FURTHER DETAILS AND BOUNDARIES

**ACTIVITY IN THE LAST 125 DAYS**

NIL

-----END OF REGISTER SEARCH STATEMENT-----

Additional information: (not part of the Register Search Statement)

Street Address: 86 GORDON STREET FOOTSCRAY VIC 3011

**ADMINISTRATIVE NOTICES**

NIL

eCT Control 16320Q WESTPAC BANKING CORPORATION  
Effective from 17/11/2022

**OWNERS CORPORATIONS**

The land in this folio is affected by  
OWNERS CORPORATION PLAN NO. SP028786X

DOCUMENT END



# Imaged Document Cover Sheet

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Document Type	<b>Plan</b>
Document Identification	<b>SP028786X</b>
Number of Pages (excluding this cover sheet)	<b>4</b>
Document Assembled	<b>05/07/2023 15:16</b>

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28/86

(CHART 21)

PLAN OF STRATA SUBDIVISION SP28786X

THE PARCEL - The whole of the land described in Certificate of Title Volume 8961 Folio 549 being part of Crown Portions 6, 7 & 8, Part of Crown Allotment 6 Section 15 Parish of Cut Paw Paw County of Bourke

REGISTERED

EDITION 3

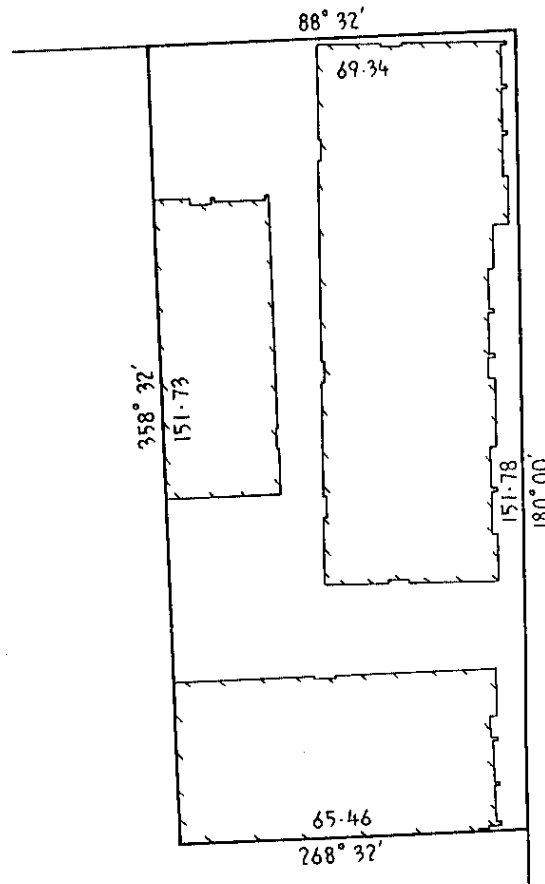


TIME 9.00 AM DATE 6.6.88

POSTAL ADDRESS OF BUILDINGS 84 - 90 GORDON STREET FOOTSCRAY 3011

FOR CURRENT ADDRESS FOR SERVICE OF NOTICE SEE OWNERS CORPORATION SEARCH REPORT

MEPHAN STREET



GORDON STREET

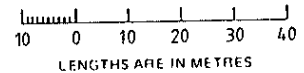


Diagram showing the external boundaries of the site and the location in relation thereto at ground level of all buildings in the parcel.

SURVEYORS CERTIFICATE

I, Trevor Neil Forge a surveyor licensed under the Surveyors Act 1978 certify that this plan and any measurements on which it is based have been made by me or under my personal direction and supervision; that the standard of accuracy of any measurements made to determine the external boundaries of the site complies with the requirements of and under the Surveyors Act 1978; that the plan accurately represents as at the 19th day of OCTOBER 1987 in the manner required by or under the Strata Titles Act 1967 and by or under the Surveyors Act 1978; and within the limitations of the scale used and the standard of accuracy required, the boundaries of the units and the location at ground level of all buildings in the parcel in relation to the external boundaries of the site; and that all units are within the parcel.

Signature Trevor Forge Date 4/12/87

SEAL OF MUNICIPALITY AND ENDORSEMENT

Sealed pursuant to Section 6 (i), Strata Title Act

THE SEAL OF THE COUNCIL OF THE CITY OF FOOTSCRAY WAS AFFIXED HERETO PURSUANT TO SEC. 6 (1) OF THE STRATA TITLES ACT 1967

MAYOR [Signature]
COUNCILLOR [Signature]
TOWN CLERK [Signature]
DATE 11.14.88

k. a. reed (group) pty. ltd.
8 MARKET STREET, MELBOURNE, 3000.
surveys 62 2721 (7 lines)
engineers architects planners cartographers



SURVEYORS REF

16050 U

VICTORIA

[Signature]

LICENSED SURVEYOR
SHEET 1 OF 3 SHEETS

SP 28,000

SCHEDULE OF UNIT ENTITLEMENT AND UNIT LIABILITY

28786

FOR CURRENT OWNERS CORPORATION DETAILS  
SEE OWNERS CORPORATION SEARCH REPORT

LEGEND

- 1) THE BUILDING IN THE PARCEL A PART OF WHICH IS CONTAINED IN EACH OF LOTS 2,5 & 6 IS A SINGLE STOREY BUILDING.  
THE BUILDING IN THE PARCEL A PART OF WHICH IS CONTAINED IN LOT 3 IS A SINGLE STOREY BUILDING.  
THE BUILDING IN THE PARCEL A PART OF WHICH IS CONTAINED IN LOT 4 IS A SINGLE STOREY BUILDING.
- 2) THE LOWER BOUNDARY OF EACH OF LOTS 2-6(BI) LIES ONE (1) METRE BELOW THAT PART OF THE SITE WHICH LIES WITHIN THE VERTICAL OR NEAR VERTICAL BOUNDARIES OF THE RELEVANT LOT AS SHOWN ON THE DIAGRAM ON SHEET 3 HEREOF.  
THE UPPER BOUNDARY OF EACH OF THESE LOTS IS TEN (10) METRES ABOVE ITS LOWER BOUNDARY.
- 3) NO LOT ON THIS PLAN IS AN ACCESSORY LOT
- 4) THE COMMON PROPERTY IS ALL THE LAND IN THE PARCEL EXCEPT THE LAND CONTAINED IN LOTS 2-6(BI)

LOCATOIN OF BOUNDARIES DEFINED BY BUILDINGS  
MEDIAN : ALL BOUNDARIES

**k. a. reed (group) pty. ltd.**  
8 MARKET STREET, MELBOURNE, 3000.  
surveyors 62 2721 (7 lines)  
engineers architects planners cartographers



SURVEYORS REF.

16050 U

VICTORIA

*Shane Jorgensen* 4/12/87

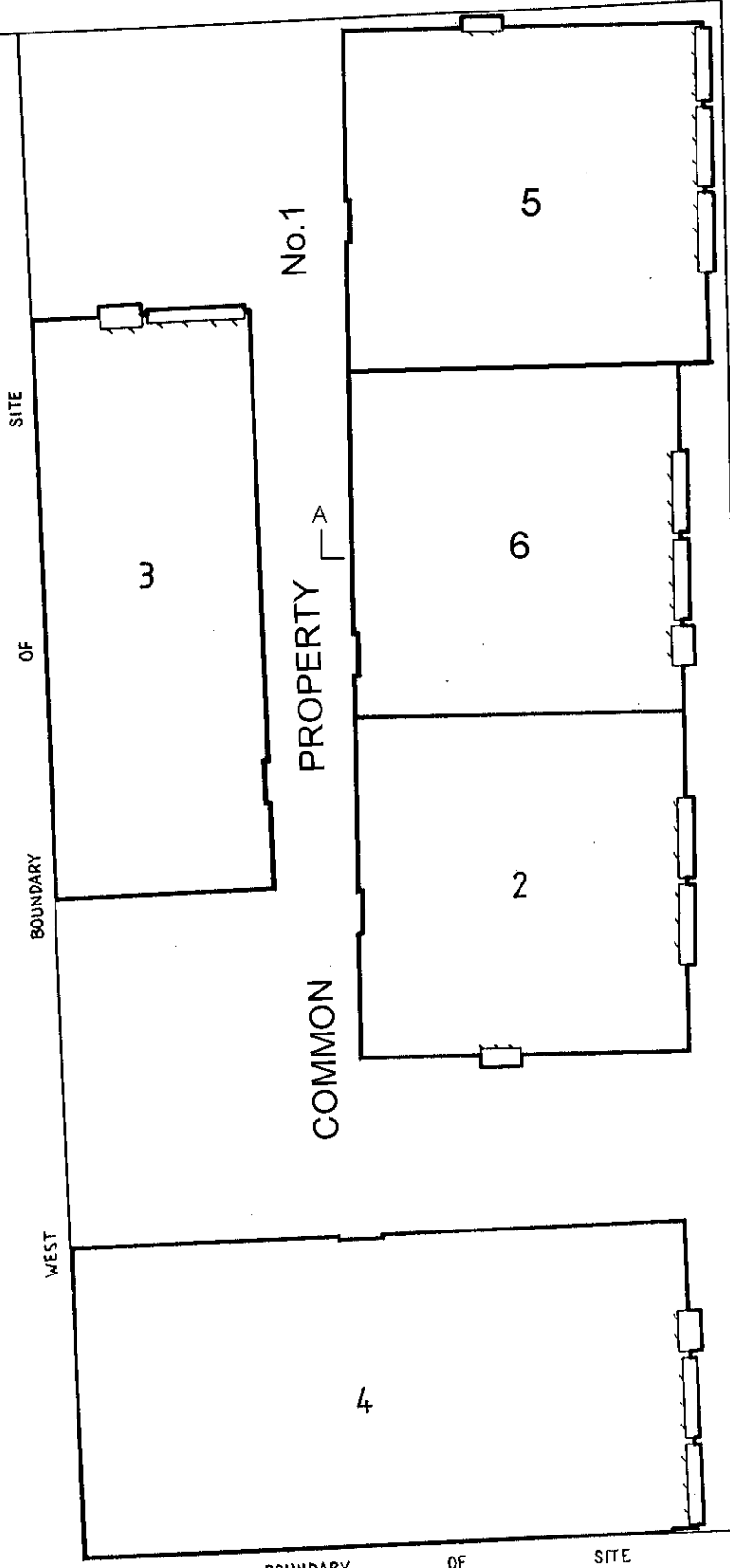
LICENSED SURVEYOR  
SHEET 2 OF 3 SHEETS

SP 6000

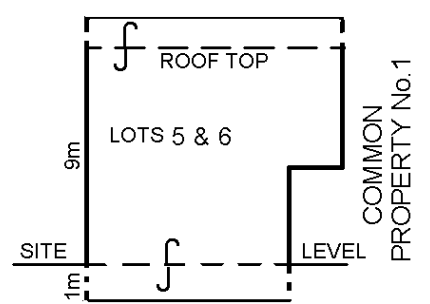
28786

1/2011

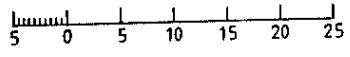
MEPHAN STREET



GORDON STREET



CROSS SECTION A-A' (TYPICAL) NOT TO SCALE



LENGTHS ARE IN METRES

**k. a. reed (group) pty. ltd.**  
 8 MARKET STREET, MELBOURNE, 3000.  
 surveyors 62 2721 (7 lines)  
 engineers architects planners cartographers



SURVEYORS REF.  
**16050 U**

*James Fudge* 4/12/87  
 LICENSED SURVEYOR  
 SHEET 3 OF 3 SHEETS

VICTORIA



Reference: TP35/2023(2)  
Contact: Joshua Seager  
Telephone: 9688 0337  
Email: Joshua.Seager@maribyrnong.vic.gov.au

LED Media Group Pty Ltd  
A.B.N 16 655 834 638  
7 Wurundjeri Drive  
Epping VIC 3076  
(03) 9422 1288

**23 September 2024**

Daniel Andrews  
LED Media  
c/o Sabri Beyzade  
86 Gordon Street Footscray VIC 3011

Via e-mail: daniel.andrews@ledmedia.com.au

Dear Josh,



**SECTION 54 REQUEST FOR FURTHER INFORM**

<b>Application No:</b>	TP35/2023(2)
<b>Address:</b>	86 Gordon Street Footscray
<b>Proposal:</b>	To display an electronic, business identification sign

Please find attached our full 'Statement of Environmental Effects' you require for town planning application TP35/2023(2), for sign installation for your consideration.

Note, this statement is to be read in conjunction with attached artwork to ensure our position is clear;

- site photos and planning context, as updated ~ file named "LED\_SubsAuto\_Permit" 21.08.2023
- also, this statement has been prepared in response to RFI letter received by dated 13.09.24

**Basic Description of Sign**

Sign applied for is in a IN3Z - Industrial 3 Zone as such controls in 52.05 signs. It is identified as a electronic sign with a display area of 14m2 (single face). The positioning of the sign once installed would be south facing with primary visibility to oncoming traffic and pedestrian footpath traffic passing the sign on approach heading north bound on Gordon Street only.

- Veiling luminance limited to 0.25 cd/m<sup>2</sup>.
- One image per slide.
- Images are static
- Dwell time 10 seconds
- Screen changeover rate = Instantaneous.

- in reference to planning controls it has combined elements of Electronic Business Identification and Promotion Sign and other Business Identification static signs located at 86 Gordon Street Footscray.

**Planning Assessment - Statement of Environmental Effects**

The purpose of this application is for Sab's Auto Pty Ltd to install their new style sign as to be designed, constructed and installed by LED Media - a national installer of such screens and signs. The sign proposed is only illuminated from the face of the sign and fabricated primarily from aluminium/plastic and aluminium.

The design is modern and clean which is the purpose of Sab's Auto Pty Ltd signage - to give a clean, bright and professional appearance, whilst reinforcing the brand and reputation. The purpose of the sign, regards message - re. planning scheme 'standard' 52.05 is for business identification and promotion.

The sign will comply with town planning expectations by not adversely affecting residential property, pedestrians, vehicles or aircraft. The lighting impact of the proposed sign will be minimal as it will have lighting controls that will vary brightness depending on context of the surrounding lighting - using auto dimming (PE cell) - this is the same as the many other precedents that have been allowed like this in Melbourne.

Lights are incorporated within the sign and all wiring is concealed. The design of the sign conforms with the character of the area. It does not obscure important views, dominate or impinge on other advertising signage - see artwork pages attached. The size of the sign is appropriate to the size of the building and the type of business it represents.

We trust this environmental effects statement is adequate for your consideration. Please see statements to relevant planning controls that follow.

### **The character of the area:**

The site location of the 86 Gordon Street is situated within a Industrial Zone (in accordance to the Western side of Gordon Street) and the Eastern side is a Residential zone. Along the western side section of Gordon St is heavily developed industrial sector that is home to a variety of businesses.

Due to the widely diverse nature of business, there are currently in place a variety of sign types ranging from small format signage, static signage, wall signage, temporary signs and illuminated box signage. The size of signage is also significantly ranging in size depending on the building type and size of street frontage available. The signage design plan for this street is quiet diverse in nature and is evident of a location rich in early history as well as clear signs of progressive development over the current years. As a consequence it would appear signage has also been continuous in effort to remain tasteful in design (without visible restriction to use of bold colours or large graphics), and considerate to the street facade but as well progressive to match new business requirements.

### **Impacts on views and vistas:**

The sign design and siting of the proposed electronic sign will ensure it is effective, clear and of high visual quality while protecting the amenity of the surrounding area. In context it is not excessive and is well located. The proposed sign location ensures that the rear section of the sign is completely concealed by the neighbouring property wall and unseen from south bound traffic. Because the proposed location of the sign is setback and concealed by the abutting neighbouring property wall, it eliminates chance of protrusion outside of building boundary and/or vista. In fact the sign location seeks to provide a truly seamless integration onto the building without any negative impact to existing vista or site line influence. The sign will contribute to the appearance of the area and add interest to the locality. The sign configuration is planned to provide a more up to date look. As such it is well set back from the street and is not overpowering.

The quality of the lighting will be such that no flashing or intermittent light will be released and the output levels will be controlled to ensure good veiling luminance levels - not creating a road hazard - or impact to the surrounds.

The proposed sign will not change the impact views and vistas of the streetscape - apart from an improvement. Same with the property it is proposed to be on - it will add value and visual appeal. Furthermore the visual appearance of a significant view corridor, view line, gateway location or landmark site identified in a framework plan or local policy will not be altered.

No forrest or tourist roads or scenic routes are affected nor is there an added affect open space reserves or corridors around waterways. There will be no formation of a dominant visual element to residential areas within a heritage place or where they will obstruct significant view lines.

### **The relationship to the streetscape, setting or landscape:**

The sign location will not protrude higher than the existing building wall and therefore not exceed or dominate the skyline. Nor will it have any influence on obscuring site vistas. Because the sign location is setback from property boundary (estimated 2000mm) it would have no impact or impede oncoming views to existing signage whether up close or at a distance.



The proposed sign does not add to signage clutter or adversely affect amenity. Neither does it dominate skyline, surrounding structure or obstruct significant public views.

#### **The relationship to the site and building:**

The sign will contribute to the appearance of the area and add interest to the locality. The sign configuration is planned to provide a more up to date look. As such it is well set back from the street and is not overpowering.

The scale of the sign is proportionate to the large building size and ensures graphics displayed on screen are easy to read, simple to view and does not cause distraction to drivers. In relationship to both existing and neighbouring business signage, the proposed new sign is smaller in size, more modern, sophisticated and achieves a much more professional branding and signage image due to the use of state of the art high resolution digital LED technology.

The sign location has a minimal angle from internal wall to ultimately provide a direct viewing aspect that intentionally focuses towards oncoming traffic and provides the best viewing angles to increase clear viewing and reduce any strain or confusion of the passing traffic / pedestrians.

The character of the area including built form is conducive to this style sign as proposed - and in fact the sign will bring a greater level of sophistication to the area. Due to the location of the new sign, there is no need for any vegetation removal.

#### **The impact of structures associated with the sign:**

The structures associated with the sign will similarly be improved as, to progress to installation, as approved by responsibly authority will require rigorous engineering detail to ensure structure is to National Building code.

As stated previously - the design of this sign will be state of the art and to a quality expected of a company that designs and installs these types of signs regularly nationwide. All framework to be painted black, rear of frame to be clad in Aluminium composite.

There will be a regular service and maintenance agreement in places which ensures the tidy up keep of the sign structure and ensures it is continually kept professional looking in appearance.

#### **The impact of any illumination:**

When positioning the sign we have carefully considered neighbouring properties on the eastern side of Gordon Street and consequently orientated the display as such it would not have any direct light impact towards the east.

Regards the impact of any illumination - the proposed sign will comply to Road safety and Council controls or LED Media applied controls will limit advertising content so that graphically it will not represent or mimic or give the impression of safety signals - in other words will ensure that what will be produced will be quality graphic reproduction in the built environment.

- **Sign Lighting Control Details**

Veiling luminance is caused by glare sources in the observer's field of view. Illuminated signage operating at night is an example of a glare source that can cause veiling luminance to drivers. Veiling luminance to the observer is dependent on the size, orientation, location and luminance of the glare source with respect to the observer's view.

The electronic signage output will be controlled by an intelligent (programmable) lighting control system, that can be set to automatically control the output based on detection of ambient light levels by a photo-electrical (PE) cell (i.e. light sensor). The system will be programmed so that the output is reduced to 25% (1,375 cd/m<sup>2</sup>) when the PE cell detects that ambient light levels are low (i.e. at night). Furthermore this will ensure the system will also be regulated in the interests of amenity and shall not cause glare, dazzle or distraction to motorists or adjoining properties. The intensity of emitting light and viewing angle by mask baffle treatment will also minimise any potential light spillage into adjoining residential properties.

Brightness Output Level: 5500nitt during daytime (max output level) Illumination intensity.

Day Time - 20-100% Luminance

Night Time Or Dusk - 20% Luminance.

The proposed sign will comply with the Vicroads requirement that illuminated signs do not give a luminance to the driver of greater than  $0.25\text{cd/m}^2$  throughout the driver's approach to the sign, by dimming the sign to 25% maximum output at night, through programming of the sign's in-built intelligent lighting control system.

- **Image Transition & Proposed Dwell Time**

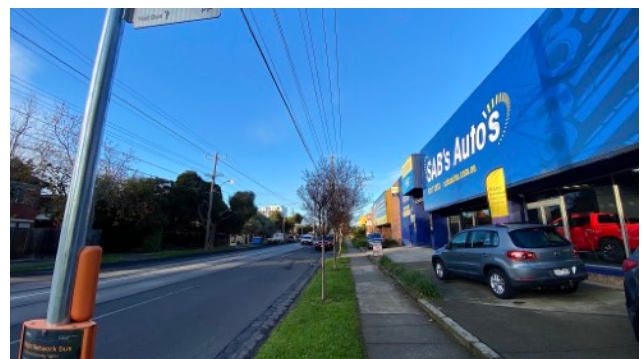
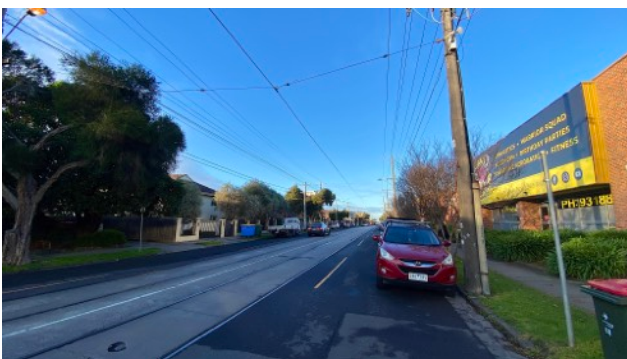
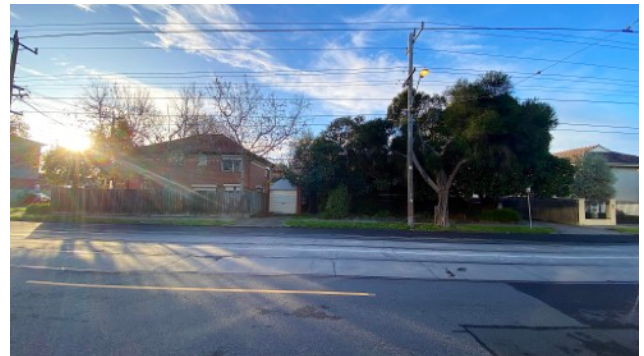
Advertising messages to be displayed for minimum duration of 10 seconds - can be set by any subsequent council or VIC Roads controls with following message transitions to be instantaneous. The content will be controlled such that messages will not be confused with traffic or safety signals.

- **Content**

The content shown on the screen will be a combination of Business Identification and Promotion images/slides.

**Important Note:**

Whilst the eastern side of Gordon street is a residential zone, due to the period nature of this area, surrounding vegetation is very mature with foliage of near by trees and front yard / nature strip landscaping would be considered very dense and covering majority of houses along Gordon street. Due to the largely mature grown nature of vegetation along the eastern side of Gordon street, it has covered direct viewing into neighbouring properties and restricted direct viewing from the western industrial side (Ref images below). Because of this, any chance of direct light spill from the proposed sign into the eastern side of Gordon street is significantly reduced if not completely removed.



**The impact of any logo box associated with the sign:**

There is no plan to incorporate a logo box into the proposed sign.

### **The need for identification and the opportunities for adequate identification on the site or locality.**

Sab's Auto's is a proudly family-owned and family-operated venture, dating back to Sab and his father working together and financing their first location. Having originated back in 1993, Sab's Auto is a loyal local community based business with a 30+ year heritage. Our client, "Sab's Auto", is a perfect example of a business that is equipped with many services and offerings, however this goes unnoticed.

Whilst the existing building signage helps to identify the business name and business type, it does not provide opportunity to clearly identify the specific services, solutions or capabilities to passing traffic or wider community. We have identified due to the lack in our clients current business identification messaging our client is missing out on the opportunity to effectively market, promote and capture new business opportunity of passing traffic.

Furthermore, there is a missed opportunity to showcase, promote and reinforce meaningful messaging about this longstanding community based business and other businesses, further highlighting the brands value messaging around, community, loyalty, quality, trust.

In addition to the above, having recently experienced an event such as covid epidemic, together with continued increasing interest rates, rising cost of business operations, slow down in business opportunity, and overall economic volatility, all elements combined is causing much difficulty to local business, especially small business.

Now more than ever businesses are seeking and looking for new ways to either reinvent their service offering, find new business and grow their customer base. LED signage is providing our clients exciting new ways to maximise their street frontage by showcasing the business and service offering in an immersive, vibrant and new way that is having direct positive impact to their business. By enabling our clients to utilise this state of the art LED display technology they are now able to provide meaningful messaging that speaks directly to passing motorists. Traditional static signage has become stagnant and is very limited in its ability to be completely effective. Static signage is also becoming more and more cumbersome with the associated cost to maintain, re print, up keep and service not matching the effectiveness or true impact of the sign itself.

New LED signage is now providing a more modern, vibrant, immersive technology, that is enabling our clients to share multiple message capabilities, which now means our clients can tailor their Business Identification messaging to showcase a wide variety of their goods, services, capabilities and promotional offers, which when all combined are correlating to a significant positive impact of business growth and professional brand identity.

Unlike many other outdoor advertising which seeks to be purely commercialised, in the case of this local business (Sab's Auto) the primary purpose of the LED sign is to provide a fresh professional looking brand image that harnesses modern LED technology in a way that provides meaningful messaging to local traffic to better communicate and showcase the entire local business service offering.

### **The impact on road safety.**

LED Media understand driver safety is of the utmost importance, hence when determining screen scale and size, multiple elements are considered to achieve a balanced scale that minimises chance of driver distraction, mitigates dazzling interference, but rather achieves a sign that is bold in appearance, clear to read, and displays proportionally to the area and speed of oncoming motorist. The sign is angled to face traffic and provide the best viewing angles to increase clear viewing and reduce any strain or confusion of the viewer.

All graphics are based on presenting static slides that have a minimum dwell time and instantaneous transition. Furthermore, the sign will not display any animation, moving image or video based graphics.

Because the sign is setback, it has no negative impact on the nearest pedestrian crossing, with continued clear site lines remaining un-obstructed to the pedestrian signal lights (which is located at a distance of greater than 18,500mm north beyond of the proposed sign location). It should also be noted that the pedestrian crossing is not a high volume crossing, and more appropriate to being an "occasionally" used crossing for people who have recently gotten off or heading to the nearby tram stop.

**Summary**

I trust this statement clearly shows that the proposed sign will meet the objectives here regards maintaining the amenity of the area and construction of appropriately located signage. The sign relates to the business it represents and does not add to a clutter of signage nor overhang on road reserve.

Daniel Andrews  
**MANAGING DIRECTOR**

# Traffix Group

# Traffic Engineering Assessment

Proposed Electronic Sign

86 Gordon Street, Maribyrnong

Prepared for  
Sab Auto

September 2023

G33894R-01B

# Document Control

**Our Reference: G33894R-01B**

Issue No.	Type	Date	Prepared By	Approved By
A	Draft	14/09/2023	J. Young	L. Furness
B	Final	15/09/2023	J. Young	L. Furness

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## **1. Introduction**

Traffic Group has been engaged by Sab Auto to prepare a traffic engineering report for a proposed electronic sign at 86 Gordon Street, Maribyrnong.

This report provides a detailed traffic engineering assessment of the traffic safety and operation issues associated with the proposed electronic sign.

## **2. Proposal**

The proposal is to erect a single-sided electronic sign (the sign) at 86 Gordon Street, Maribyrnong.

The sign will be situated on the façade of the existing building on site. It will be positioned on the western side of Gordon Street and will primarily face traffic travelling northbound along Gordon Street.

The proposed sign has dimensions of 3.0m wide by 4.0m high. The maximum height of the sign is 6.0m above ground and the underside of the sign is 2.0m above ground.

The electronic sign will operate with static images providing advertising for the existing business operating on-site.

Each image on the sign will have a dwell time of 30 seconds, with an instantaneous transition time. The application does not propose any animated images (i.e. moving images).

Plans of the proposed sign location included within the application plans are provided at Figure 1 and Figure 2.

An in-vehicle view of the existing conditions at the site when travelling northbound along Gordon Street, as taken during our site inspection is presented at Figure 3.

A copy of the application plans prepared by the applicant detailing the proposed sign are attached at Appendix A.

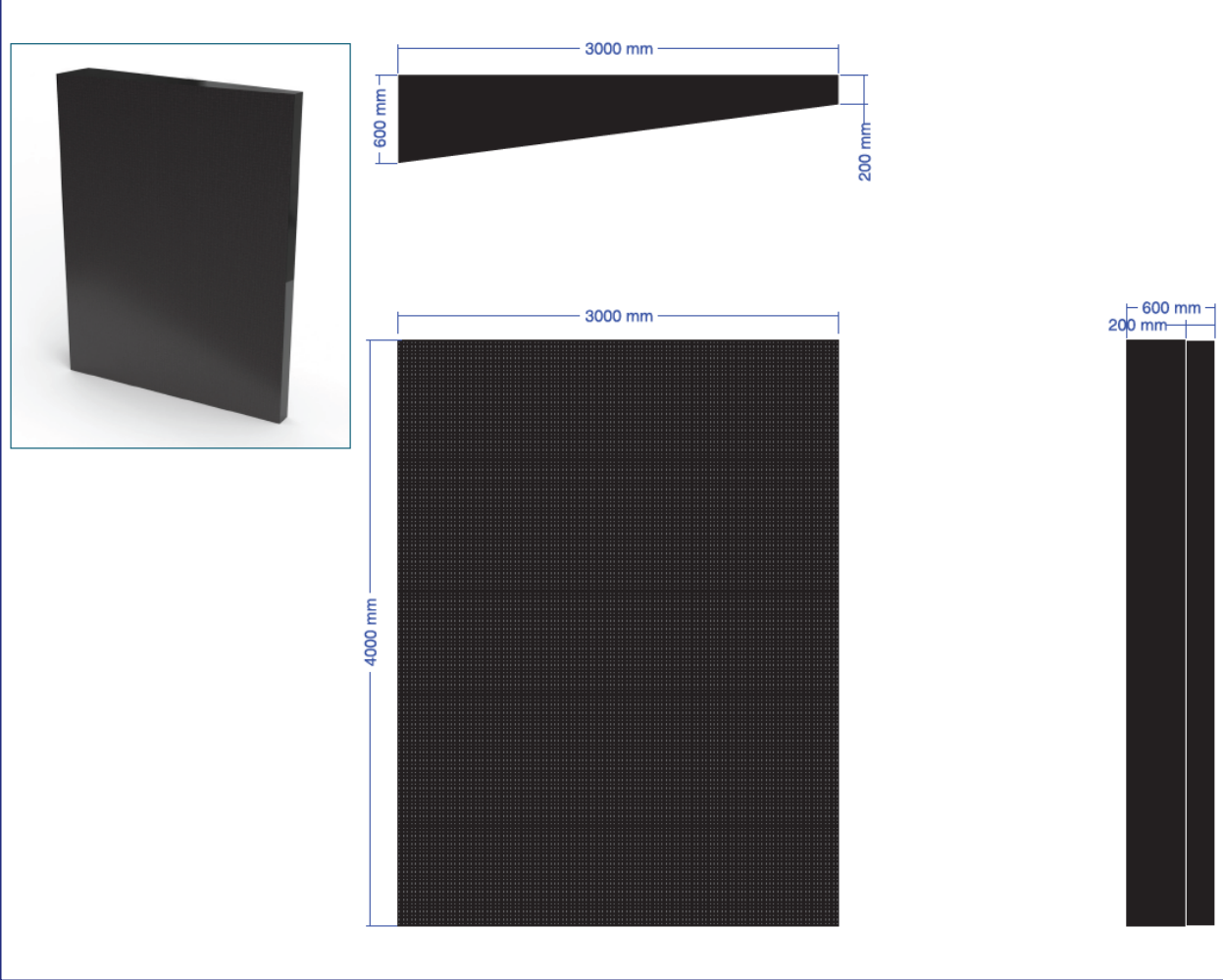


Figure 1: Proposed sign

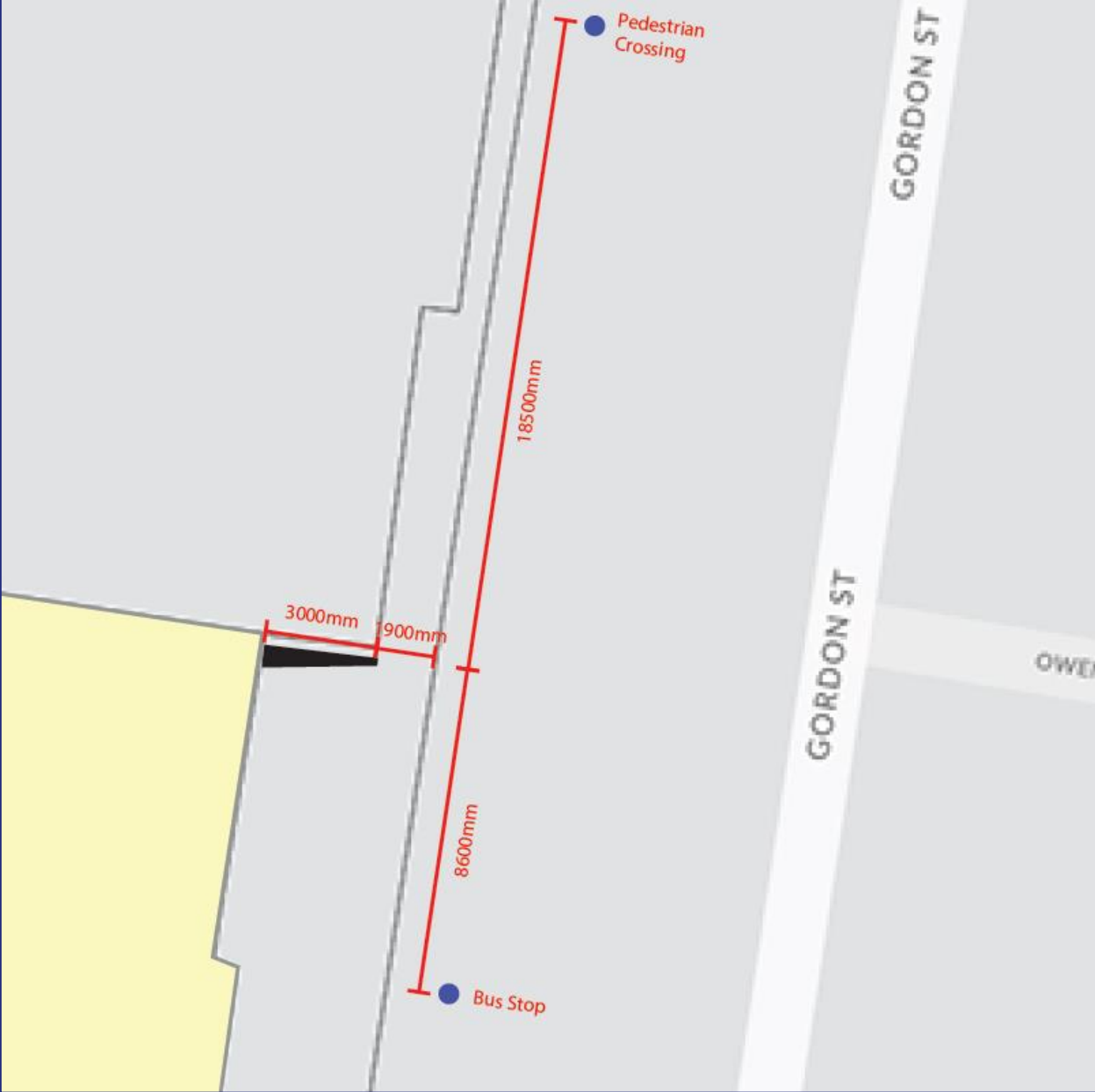


Figure 2: Site plan



Figure 3: In-vehicle view of the sign location – northbound on Gordon Street

## **3. Existing Conditions**

### **3.1. Subject Site**

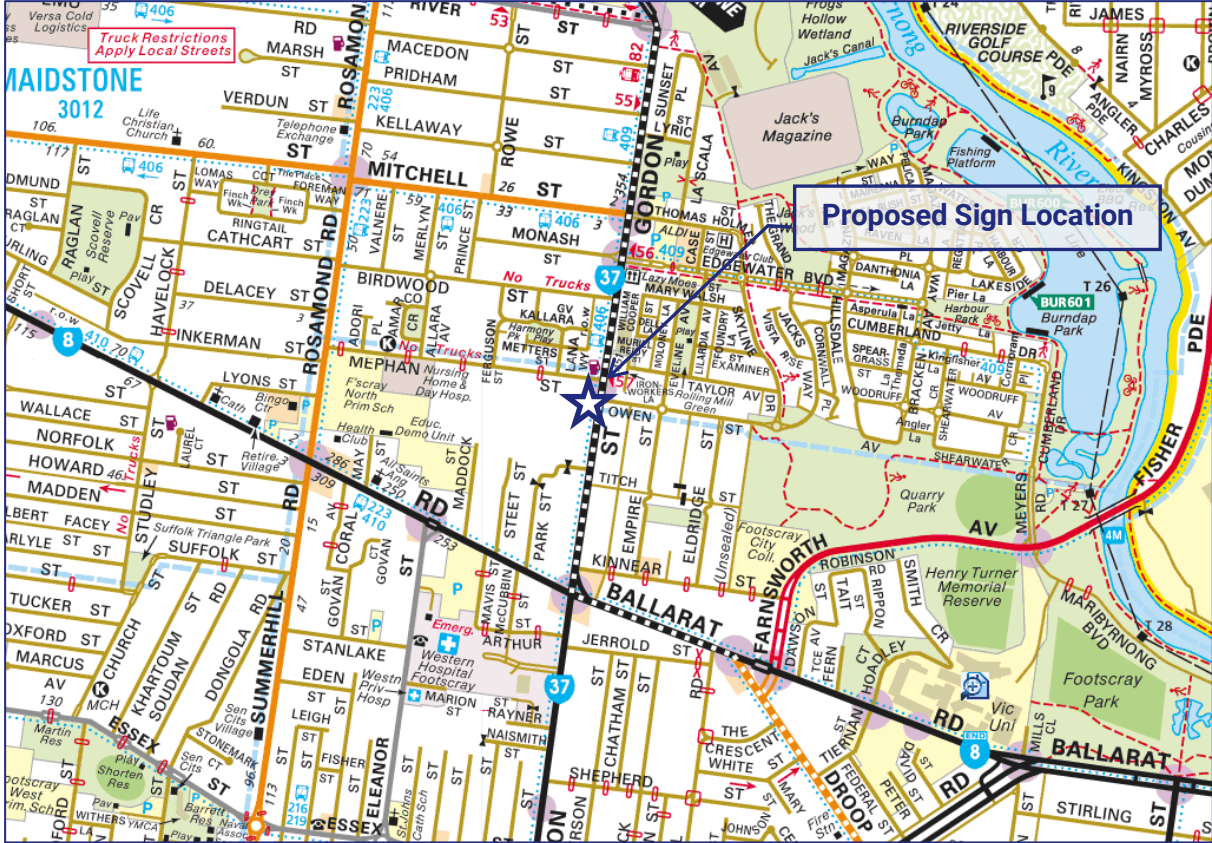
The sign will be located on the western side of Gordon Street and will be situated on the façade of the existing building on-site.

The sign will be single-sided and will primarily be visible to traffic travelling northbound along Gordon Street. A locality plan is presented at Figure 4.

Land use in the immediate vicinity of the site is a mixture of industrial, commercial and residential. A land use zoning map is provided at Figure 5.

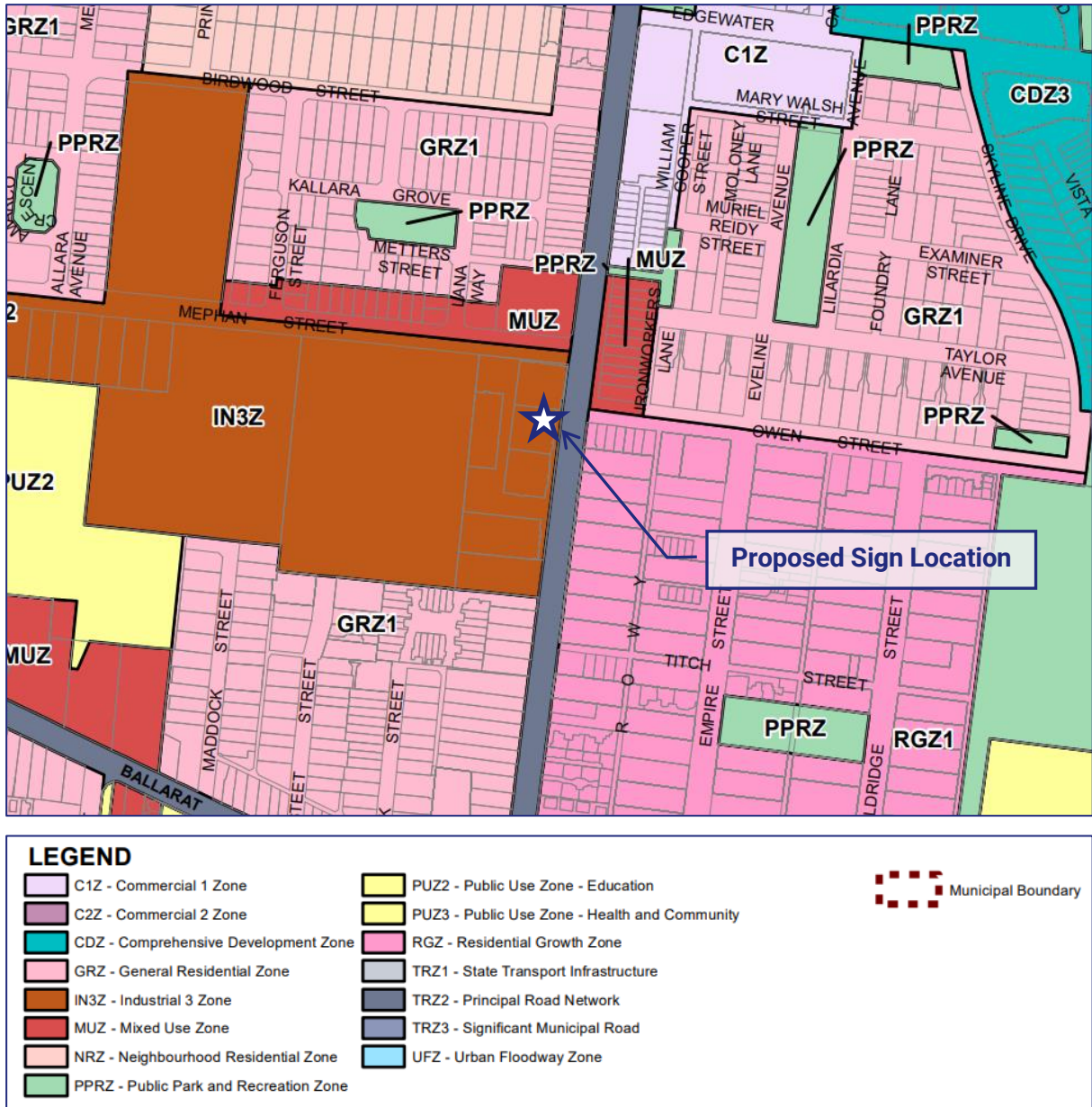
# Traffic Engineering Assessment

86 Gordon Street, Maribyrnong



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Figure 4: Locality plan



Source: Planning Schemes Online

Figure 5: Land use zoning map

## 3.2. Road Network

**Gordon Street** is a Department of Transport and Planning (DTP) operated Arterial Road and Transport Zone 2 under the Planning Scheme, which is aligned in a north-south direction.

In the vicinity of the site, Gordon Street provides 2 traffic lanes in each direction. The centre lane is shared with trams, while kerbside parking is also available on both sides of the road.

A posted speed limit of 60km/h applies to Gordon Street in the vicinity of the site.

An aerial photograph illustrating the key road signage and available traffic lanes for northbound traffic approaching the sign is provided at Figure 6.

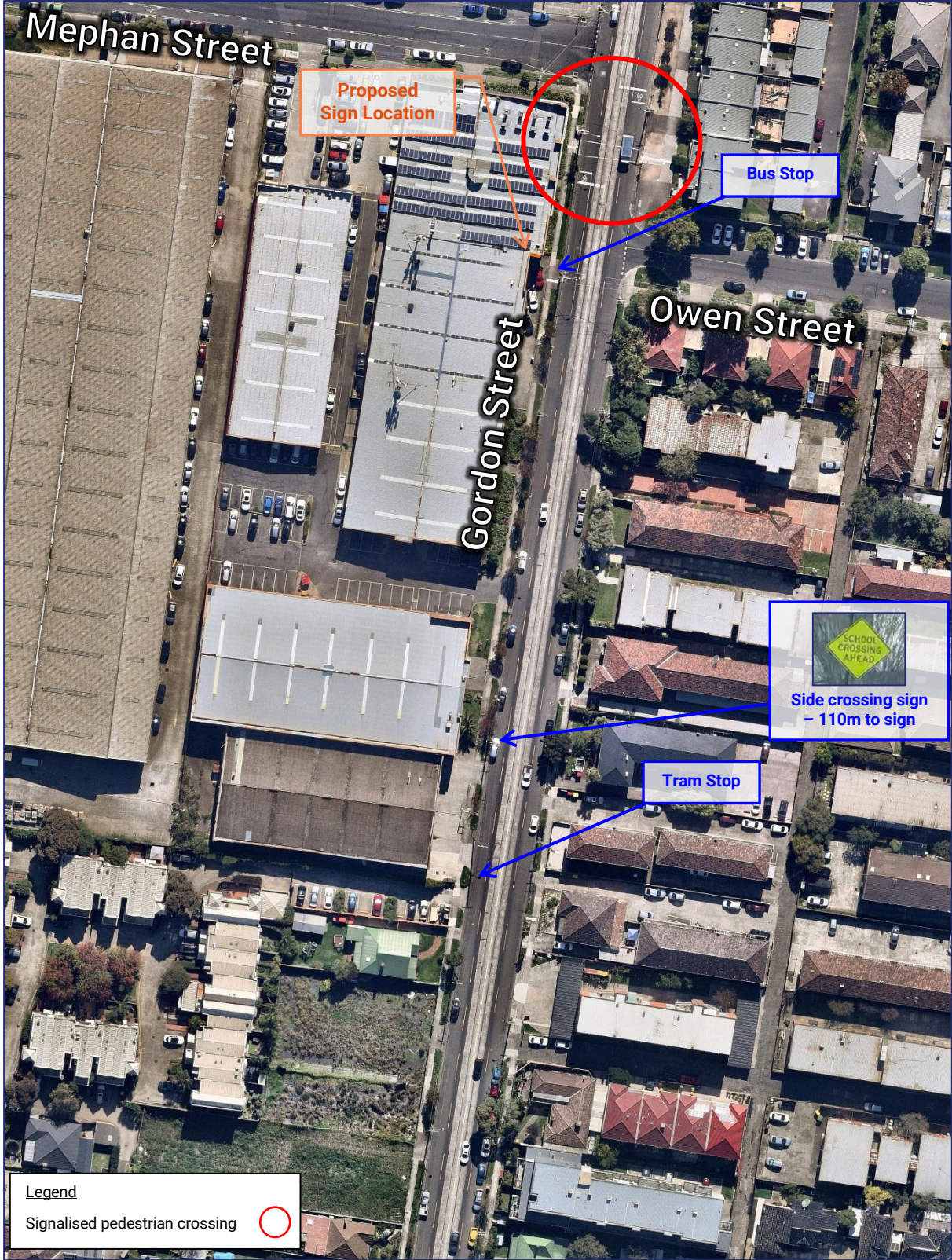


Figure 6: Aerial photograph of road network (northbound approach)



### 3.3. Road Safety Review

A review of the State Road Accident Records (CrashStats) has been undertaken in the vicinity of the site for the past 5 years of available data (01/05/2015 to 30/04/2020)<sup>1</sup>. The crash investigation area is shown in the figure below.

The review does not include crashes where the sign would not be visible to drivers (such as rear end crashes between southbound vehicles to the south of the sign).

The detailed crash review is provided at Appendix B.

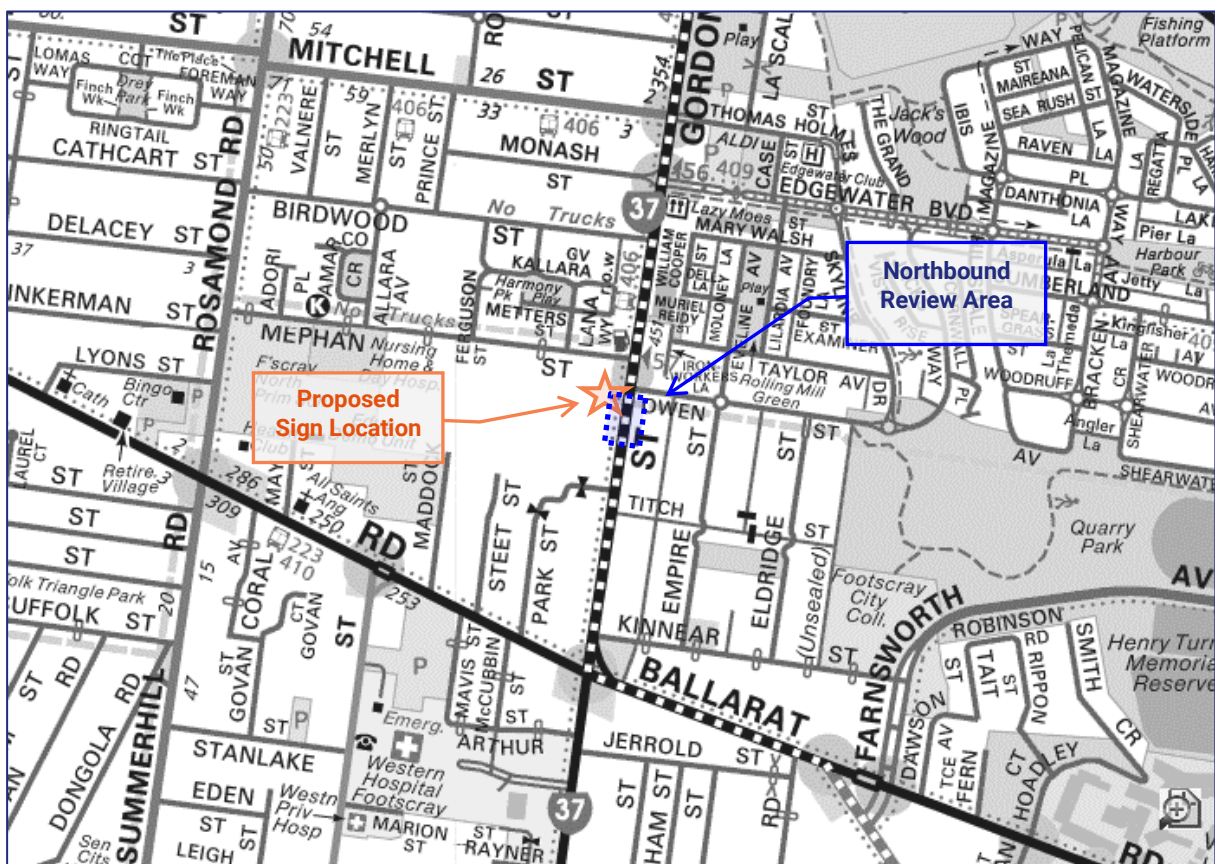


Figure 7: Road safety review area

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A total of two casualty crashes occurred on the northbound approach to the sign.

Both of these crashes were of a different type, and occurred at different locations, and we are satisfied that there is no discernible crash pattern.

Overall, we are satisfied that the approach to the proposed electronic billboard is not inherently unsafe.

<sup>1</sup> Casualty crash data is contained in the VicRoads' CrashStats Internet Database and includes all reported casualty crashes (i.e. injury crashes), which are classified into Fatal Injury, Serious Injury and Other Injury (i.e. minor injury) crashes. Property damage only or non-injury crashes are not included in the database

## **4. Traffic Engineering Assessment**

### **4.1. Road Safety Research**

We have undertaken an extensive literature review to determine what road safety research is available regarding static and electronic billboards, including roadside signage and advertising, the relationship between advertising signs and accident statistics, the relationship between driver performance and billboards and billboard design recommendations.

The key conclusions from the current road safety research into static, electronic billboards are:

- Drivers have a 30 to 50% spare attention capacity, which they devote to objects not related to the driving task, including advertising or billboard signs. This means that during normal driving, most drivers have time to look at objects not related to the driving task (scenery, buildings, people, cars, etc.). Research also indicates that when a driver is overloaded with information, they shed part of the input demand to focus on what is important. For instance, if a driver is in busy traffic, they automatically pay more attention to the road environment at the expense of other tasks (looking at scenery, talking to passengers, listening to music, etc.).
- Traffic signs are not conspicuous to drivers until they are within approximately 10 degrees horizontally and 5 degrees vertically from the driver's line of sight. Research indicates that the further away from a vehicle an object is and the faster a vehicle is travelling, drivers have less ability to look at objects away from their travel path. The implication is that signs located above or to the side of vehicle travel paths can only be comfortably viewed at certain points and outside of these sight lines, drivers are unlikely to look at signs.
- Eyes-off-road durations greater than 2 seconds significantly increased individual near-crash/crash risk, whereas less than 2 seconds was comparable to normal driving. Outdoor advertising is intended to be a 'glance medium' with only short glances of only a second being required to read and interpret the message, which would not have a significant impact on road safety.
- There is no measurable difference between a driver's behaviour towards digital billboards compared to conventional billboards, comparison sites (landmarks, on-premises signs) and baseline sites (sites with no signs). This includes mean number of glances, glance direction, percentage eyes on road, lane and speed deviation.
- Multiple studies have found that no significant driver distraction effect could be ascertained for electronic billboards when compared to conventional billboards, and no effect on crashes could be determined as a result of installing electronic billboards in new sites or in sites where conventional billboards operated previously.
- New Zealand crash study data confirms advertising signs are not a statistically significant cause of road crashes. This data indicates that of the 11.8% of casualty crashes that involved 'attention diverted' as a contributing factor, only 0.3% identified 'advertising or signs' as a factor. That is, a factor in less than 0.04% of total casualty crashes.

The detailed findings from the road safety research are presented at Appendix C.

**4.2. Traffix Group Review of Legibility Distances of Electronic Billboards**

Traffix Group has conducted a video and GPS survey of electronic billboards around Melbourne to determine the distances that major promotion signs in the form of electronic billboards were legible from a passenger car. A total of 18 electronic billboards were observed in the survey.

The survey used a GPS device fitted to the vehicle to record the location where the advertising sign was first legible by the driver/passenger (i.e. readable and not just where it was visible) and the actual location of the advertising sign.

From a road safety perspective, the distance that an advertising sign is legible is more important than the distance that it is visible, as an illegible sign is unlikely to capture or hold the attention of passing observers. The distance at which a sign is visible, but not yet legible, is of little relevance to the assessment as it would have a similar affect to observing buildings, landmarks or other roadside features at a distance.

The distances that advertising signs were legible (i.e. could be read or understood if presented pictorially) are presented in Table 1.

It was found that the legibility of the advertising sign varied with regard to a number of factors including size, location, whether it was obscured by roadside objects and in particular, the image displayed on the advertising sign.

The clarity of the sign was the key variable in determining its legibility. For example, bright images and videos, in conjunction with a long sight distance made one large electronic billboard (with a width of approximately 27m) noticeable from a large distance (570m). A number of electronic billboards were not able to be seen until within a close proximity to the sign due to their location, however these billboards were clearly legible once they had come into the driver’s cone of reading vision. Electronic billboards positioned away from the roadway or located in obscure positions were difficult to comprehend and could only be understood after close observation.

*Table 1: Legibility distances of electronic billboard advertising signs*

Distance Measure	Legibility Distance
Mean	217m
Median	205m
Minimum	98m
Maximum	570m
85 <sup>th</sup> Percentile	282m

It is unlikely that drivers will look at any advertising sign that is greater than its legibility distance. For the purposes of this assessment, we are satisfied that drivers are unlikely to look at an advertising sign that is greater than the 85<sup>th</sup> percentile legibility distance or 280m from the driver’s viewpoint.

It is of note that this is a highly conservative measure, as the proposed sign (i.e. 3m x 4m) is much smaller than the majority of those surveyed.

### 4.3. Assessment of Sign Legibility and Driving Task

The following section reviews the driving task approaching the proposed advertising sign from the northbound approach of Gordon Street. It is not anticipated that the sign will be visible from any other approach.

This analysis uses a variety of aerial photographs and 'in-car' photographs. These photographs were taken as snapshots from a video camera mounted on the windscreen of a car at the driver's eye height and represent the locations at which the driver/passenger identified that the sign was first legible. The vehicle position on the road network was determined by GPS coordinates. The vehicle was fitted with a GPS device that tracks the vehicle and enables data points to be logged by the driver/passenger (by the press of a button), time stamped and correlated to the video data.

Glossary of key terms and calculations:

- **10° horizontal and 5° vertical cone of reading vision:** Traffic signs are not conspicuous to drivers until they are within approximately 10 degrees horizontally and 5 degrees vertically from the driver's line of sight. Research indicates that the further away from a vehicle an object is and the faster a vehicle is travelling, drivers have less ability to look at objects away from their travel path. The implication is that signs located above or to the side of vehicle travel paths can only be comfortably viewed at certain points and outside of these sight lines, drivers are unlikely to devote significant attention to a sign unless they have spare attention capacity.
- **20° cone of peripheral vision:** The sign is considered to fall outside of the driver's peripheral cone of vision once it moves outside of the driver's 20° cone of peripheral vision. Past this point drivers are unlikely to look at the sign as during free-flow traffic conditions the sign is rapidly moving past the vehicle.
- **Calculations:** Distances where signs fall outside of the driver's cones of vision were calculated based on the method detailed within the Austroads Guide to Traffic Management Part 10: Traffic Control and Communication Devices. These are provided at Appendix D.  
For side-mounted signs, the driver's cone of reading vision is considered to be 10° horizontally. The proposed sign falls outside of this cone of vision approximately 55m from the proposed sign location for northbound drivers, based on the centre of the northbound traffic lanes being approximately 10m offset from the centre of the sign.
- **Visibility distance:** The visibility distance relates to when drivers can see the sign and does not necessarily mean that drivers can read the sign (see legibility distance below). Visibility distance does not necessarily mean the entire sign is visible as signs in urban environments are often only partially visible at first due to roadside obstructions (i.e. vegetation or nearby buildings) and drivers are unlikely to devote attention to the sign if more than half of the sign is obscured.
- **Legibility distance:** The legibility distance is the location where the face is readable. The legibility of the sign face is critical, as in our view drivers will not devote attention to the

sign face if it is not within a legible distance. The distance that the proposed electronic sign is likely to be legible is based on surveys conducted by our office of billboard signs (see Section 4.2) during field investigations. A legibility distance of 280m has been adopted for the proposed digital sign (noting that this is a conservative measure).

### 4.3.1. Northbound on Gordon Street

Northbound drivers approach the advertising sign via Gordon Street.


An aerial photograph of this northbound approach with the relevant signs and landmarks highlighted is provided at Figure 8.

- — The sign is not visible
- — Sign first visible, also passes outside drivers' 10° cone of reading vision
- — Sign passes outside drivers' 20 cone of peripheral vision



Figure 8: Northbound driving task

Table 2: Review of northbound driving task on Gordon Street

Review of Northbound Driving Task – Gordon Street	
Sign Not Visible Distance from Sign: 55m+	
Visible? No. Legible? No.	Sign within 10° cone of reading vision? N/A. Sign within 20° cone of peripheral vision? N/A.
	
<p>Figure 9: Northbound approach – sign not yet visible / warning distance to pedestrian crossing (approximately 115m to the sign / 130m to pedestrian crossing stop line)</p>	

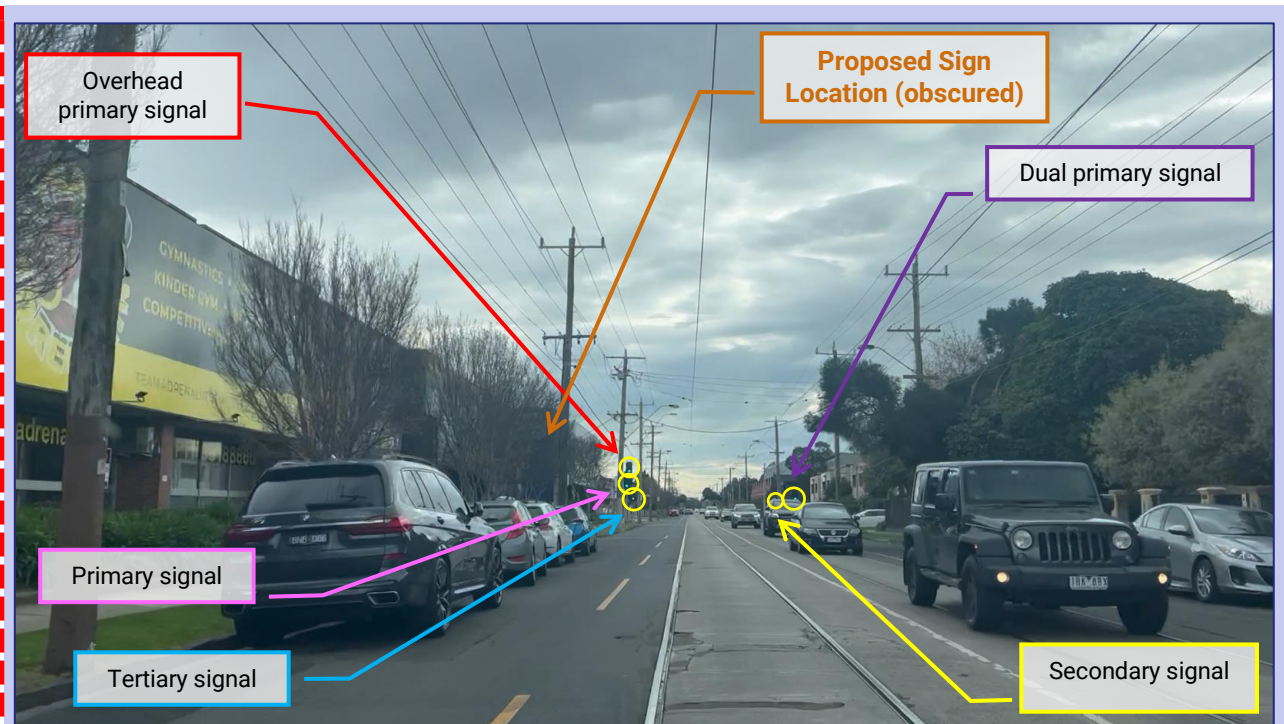


Figure 10: Northbound approach – sign not yet visible / stopping distance to pedestrian crossing (approximately 65m to the sign / 80m to pedestrian crossing stop line)

### Discussion:

The proposed sign is obstructed from drivers' view at a distance greater than 55m from its location by vegetation and other roadside furniture located along the western side of the carriageway. Even without leaves, the numerous street trees block any meaningful view to the proposal sign location.

The *AustRoads Guide to Traffic Management Part 10: Traffic control and Communication Devices* specifies the following aiming distances for signal lanterns in an 60km/h speed zone:

- Warning distance – 130m
- Stopping distance – 80m

The warning distance and stopping distance to the upcoming pedestrian crossing occur within this section of road, at approximately 115m and 65m to its location, respectively.

The sign will still be obscured by vegetation at this point and will not be visible to drivers. Accordingly, drivers will be made aware of the upcoming signalised crossing, and have decided whether to stop or proceed before viewing the sign.



Sign first visible, also passes outside drivers' 10° cone of reading vision

Distance from Sign: 55m-25m

Visible? Yes – mostly.

Legible? Yes.

Sign within 10° cone of reading vision? No.

Sign within 20° cone of peripheral vision? Yes.



Figure 11: Northbound approach – sign first visible, passes outside drivers' 10° cone of reading vision (55m to sign)

### Discussion:

The proposed sign first becomes visible to drivers (i.e. the sign partially passes out from behind vegetation and a power pole) at a distance of approximately 55m to its location. The sign will also pass outside drivers' 10° cone of reading vision at this location.

It is unlikely that drivers will pay attention to the sign from this point onwards.

The sign passes outside drivers' 20° cone of peripheral vision

Distance from Sign: 25m-0m

Visible? Yes.  
Legible? Yes.

Sign within 10° cone of reading vision? No.  
Sign within 20° cone of peripheral vision? No.



Figure 12: Northbound approach – sign passes outside drivers' 20° cone of reading vision (25m to sign)

### Discussion:

The sign will pass outside of drivers' 20° cone of peripheral vision at approximately 25m to its location.

Drivers will be unlikely to view the sign at this point as it rapidly passes to their left-hand side.

The signalised pedestrian crossing is located 15m past the sign's location.

Drivers will have already passed the warning and stopping distance before the sign is visible, and accordingly, will already be focusing on responding to the upcoming signals before they view the sign.

Additionally, at the point where drivers reach the stop line, the sign will be behind drivers' and completely out of their view. Drivers further back may be able to see the sign, but given the minimal demand on the driver waiting in stationary traffic, this is not an issue.

Accordingly, we are satisfied that the sign will not impact drivers' ability to respond to this intersection.

### **Impact of image change of drivers along the northbound approach**

On the approach to the sign, the sign will be both visible and within the driver's 20° cone of peripheral vision at a distance of 30m from the sign. The travel time for this section of Gordon Street is approximately 1.8 seconds when travelling at 60km/h in free-flowing traffic conditions. The percentage chance that a driver will observe an instantaneous transition between images along the approach to the sign during free-flowing conditions is approximately 6%.

Based on the above analysis, during free-flowing conditions, drivers would not have the opportunity to read more than 1-2 images.

Outside of free-flow times, or when stopped at traffic signals, drivers may observe more images, which is acceptable given that driver demand is negligible while the vehicle is stationary. Drivers looking around when stationary is common driving behaviour, and we consider this appropriate. Most drivers are only expected to observe one image change while traffic is moving, this accords with the recommendations of the Austroads Research Report 2013<sup>2</sup> to minimise image changes.

Passengers would be free to look at the sign at any stage as they are not engaged in the driving task.

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<sup>2</sup> Source: Austroads Research Report AP-R420-13, 2013, 'Impact of Roadside Advertising on Road Safety'.

### 4.4. Requirements of the Planning Scheme

Clause 52.05-9 of the Planning Scheme includes specific conditions related to road safety in any permit issued for a major promotion sign. Although the proposed sign is not specifically a major promotion sign (it will be used for advertising of the commercial premises on-site), we consider that these requirements still provide some relevant guidance.

These requirements are as follows:

- That the sign must not:
  - Dazzle or distract drivers due to its colouring.
  - Be able to be mistaken for a traffic signal because it has, for example, red circles, octagons, crosses or triangles.
  - Be able to be mistaken as an instruction to drivers.
- An expiry date which is 15 years from the date that the permit is issued unless otherwise specified in this clause. This does not apply to a permit for major promotion sign for a special event of temporary building shrouding.

#### 4.4.1. Assessment Against Decision Guidelines

Clause 52.05-8 includes decision guidelines to assess whether a proposed promotion sign is a safety hazard. These criteria are also adopted in DTP's (formerly VicRoads') Ten Point Road Safety Checklist.

As decision guidelines for considering an application, Clause 52.05-8 states that the responsible authority must consider:

- The impact on road safety. A sign is a safety hazard if the sign:
  - Obstructs a driver's line of sight at an intersection, curve or point of egress from an adjacent property.
  - Obstructs a driver's view of a traffic control device, or is likely to create a confusing or dominating background which might reduce the clarity or effectiveness of a traffic control device.
  - Could dazzle or distract drivers due to its size, design or colouring, or it being illuminated, reflective, animated or flashing.
  - Is at a location where particular concentration is required, such as a high pedestrian volume intersection.
  - 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.
  - Requires close Study from a moving or stationary vehicle in a location where the vehicle would be unprotected from passing traffic.
  - 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.
  - Is within 100 metres of a rural railway crossing.

- Has insufficient clearance from vehicles on the carriageway.
- Could mislead drivers or be mistaken as an instruction to drivers.

Table 3 below summarises the responses to the decision guidelines. This assessment should be read in conjunction with Section 4.3.

Table 3: Review of Decision Guidelines

A sign is a safety hazard if the sign		Response
1.	Obstructs a driver's line of sight at an intersection, curve or point of egress from an adjacent property.	<p>The proposed electronic sign is located to the side of the Gordon Street carriageway, primarily facing northbound traffic. As the sign is not located along the carriageway (being well above and to the side of the road), clear sight lines are maintained along all approaches to the sign.</p> <p><i>Therefore, the proposed sign will not obstruct a driver's line of sight at an intersection, curve or point of egress from an adjacent property.</i></p>
2.	Obstructs a driver's view of a traffic control device or is likely to create a confusing or dominating background which might reduce the clarity or effectiveness of a traffic control device.	<p>The proposed sign is in an elevated position and will not obstruct or background a driver's line of sight to any traffic control devices. Clause 52.05-9 of the Planning Scheme imposes mandatory conditions on any planning permit that minimise the chance of an advertising sign being mistaken for a traffic control device.</p> <p><i>Therefore, the proposed sign will not create a confusing or dominating background which might reduce the clarity or effectiveness of a traffic control device.</i></p>
3.	Could dazzle or distract drivers due to its size, design or colouring, or it being illuminated, reflective, animated or flashing.	<p>The proposal is for an electronic sign displaying static images. It will not be reflective, animated or flashing. The sign proposes a dwell time of 30 seconds per advertisement and an instantaneous transition time. The level of illumination, design, colour and content of the electronic billboard can appropriately be controlled by permit conditions.</p> <p>As discussed at Section 4.3, during free-flowing conditions it is expected that 6% of drivers will view an image change. This accords with the recommendations of the Austroads Research Report 2013 to minimise image changes.</p> <p>Outside of free-flow times, drivers may observe more images, which is acceptable given that driver demand is negligible while the vehicle is stationary.</p> <p><i>We are satisfied that the design of the sign will not dazzle or distract drivers.</i></p>

A sign is a safety hazard if the sign		Response
4.	Is at a location where particular concentration is required, such as a high pedestrian volume intersection.	<p>The concentration needs of drivers are discussed extensively in Section 4.3.</p> <p>On the northbound approach to the sign, the main driving task is responding to the signalised pedestrian crossing that is located 15m past (north of) the sign's location. The sign is obscured from drivers' view until they are within close proximity of it, at which point the driver has already passed the warning distance and stopping distance to the intersection. Accordingly, drivers will have been alerted to the intersection, and be in the process of responding to it before viewing the sign.</p> <p>Accordingly, we are satisfied that the sign will not impact driver's decision making in relation to this intersection.</p> <p><i>The proposed sign will not affect drivers' ability to concentrate in this location.</i></p>
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.	<p>The control of lighting types, colours and shapes can be appropriately controlled by conditions, as required by Clause 52.05-9.</p> <p><i>There is no reason to consider that the proposed sign will be mistaken for a traffic control device.</i></p>
6.	Requires close study from a moving or stationary vehicle in a location where the vehicle would be unprotected from passing traffic.	<p>It is understood that the sign will not require close study from a moving or stationary vehicle as it will be used for general advertising only.</p> <p><i>Therefore, the proposed sign will not require close study from a moving or stationary vehicle in a location where the vehicle would be unprotected from passing traffic.</i></p>
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.	<p>The sign will not specifically provide directions or instructions to turn. The advertising messages can appropriately be controlled by conditions set out by the road authority, which restricts certain types of images being used which may be mistaken as an instruction to drivers (i.e. misleading drivers to perform a certain type of movement along the approach, through the use for example of 'sound or motion' to activate the sign or interact with any of the road users).</p> <p><i>Based on advice to Traffix Group, drivers will not be invited to turn at this location as it will only be used for general advertising.</i></p>

A sign is a safety hazard if the sign		Response
8.	Is within 100 metres of a rural railway crossing.	The sign is not located within 100m of an at-grade rural railway crossing.  <i>Accordingly, this consideration is not applicable to this application.</i>
9.	Has insufficient clearance from vehicles on the carriageway.	The sign will be entirely contained within the property boundary and will not overhang any road carriageways.  <i>The proposed sign will have sufficient clearance from vehicles on the carriageway.</i>
10.	Could mislead drivers or be mistaken as an instruction to drivers.	It is understood that the advertising on the proposed sign will not mislead drivers or be mistaken as an instruction to drivers. The advertising messages can appropriately be controlled by conditions as required by Clause 52.05-9.  <i>Based on advice to Traffix Group, the proposed sign will not mislead drivers or be mistaken as an instruction to drivers.</i>

Overall, we are satisfied that the proposed electronic sign does not pose a safety hazard to road users.

## 5. Conclusion

Having perused relevant documents and plans, undertaken a field visit, arranged for a video survey, undertaken a review of literature and undertaken a traffic engineering assessment, we are of the opinion that:

- a) Traffic engineering and road safety research exists to demonstrate the following with respect to static electronic signs/billboards:
  - i) traffic signs are not conspicuous to drivers until they are within approximately 10 degrees of the driver's line of sight,
  - ii) drivers have a 30 to 50% spare attention capacity, which they devote to objects not related to the driving task, including advertising or billboard signs,
  - iii) drivers have an average reaction time to stimulus of 2.5 seconds,
  - iv) street level advertisements attracted more attention than raised advertisements,
  - v) eyes-off-road durations greater than 2 seconds significantly increased individual near-crash/crash risk, whereas less than 2 seconds was comparable to normal driving,
  - vi) outdoor advertising is intended to be a 'glance medium' with only short glances being required to read and interpret the message, which would not have a significant impact on road safety,
  - vii) there are comparable statistics between electronic billboards and conventional billboards for a number of factors such as mean number of glances, glance length, percent eyes-on-road, lane deviation and speed deviation,
  - viii) no significant driver distraction effect could be ascertained for electronic billboards, and
  - ix) no effect on crashes could be determined as a result of installing electronic billboards in new sites or in sites where conventional billboards operated previously.
- b) The proposed electronic sign will not present a road safety hazard particularly as drivers have the ability to shed any unnecessary information when they have an information overload, to focus on what is judged to be more important.
- c) The proposed electronic sign will be located on the western side of Gordon Street. The sign will be fully contained within the property boundary of the site, in an elevated position and will not obstruct a driver's line of sight to any traffic control device or traffic sign along any carriageway.
- d) The proposed electronic sign will not impact drivers' ability to react to the nearby pedestrian crossing.
- e) The proposed dwell time of 30 seconds per image and instantaneous transition time are consistent with current practice.
- f) During free-flowing conditions, drivers are unlikely to view more than one image change.



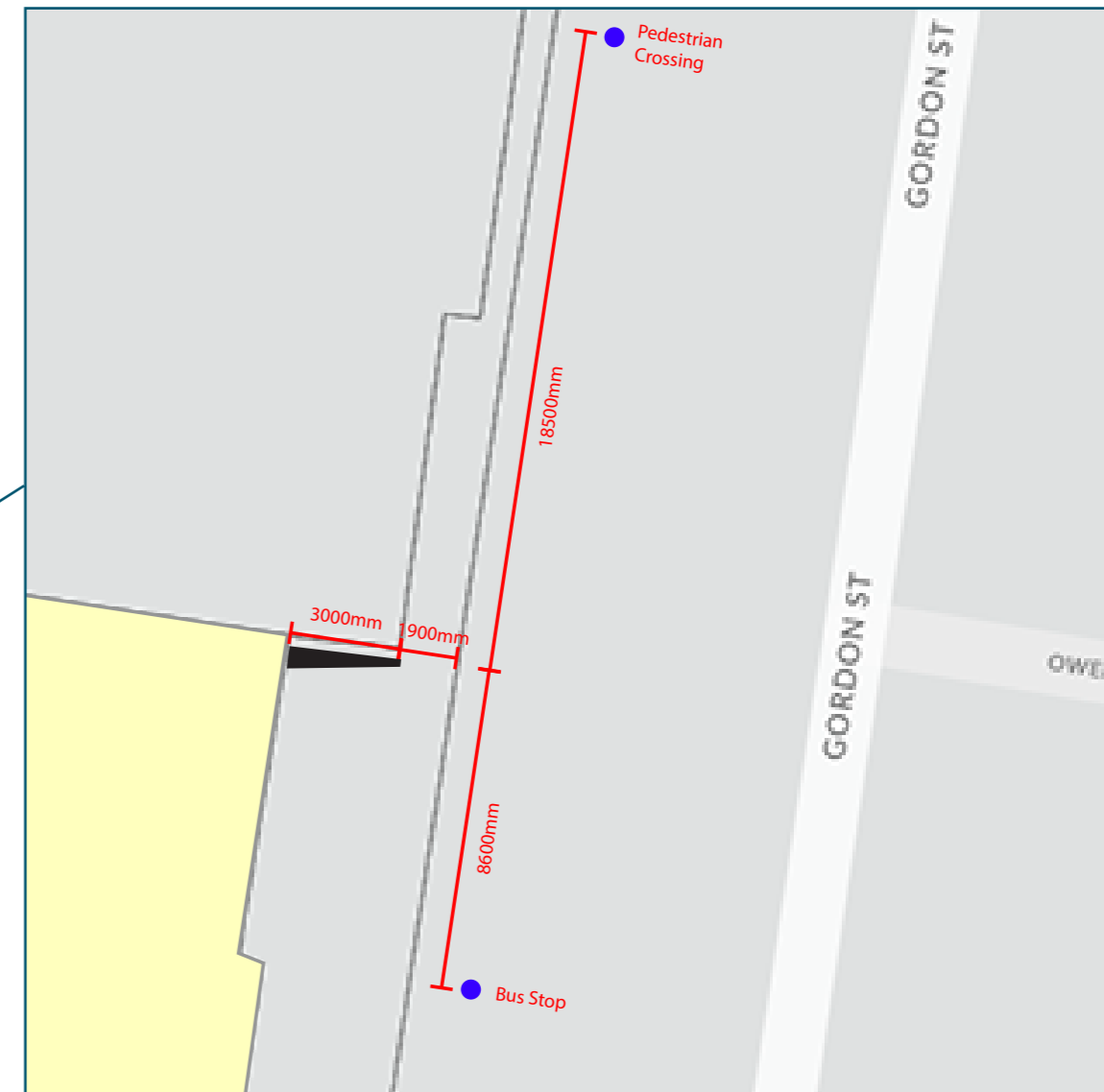
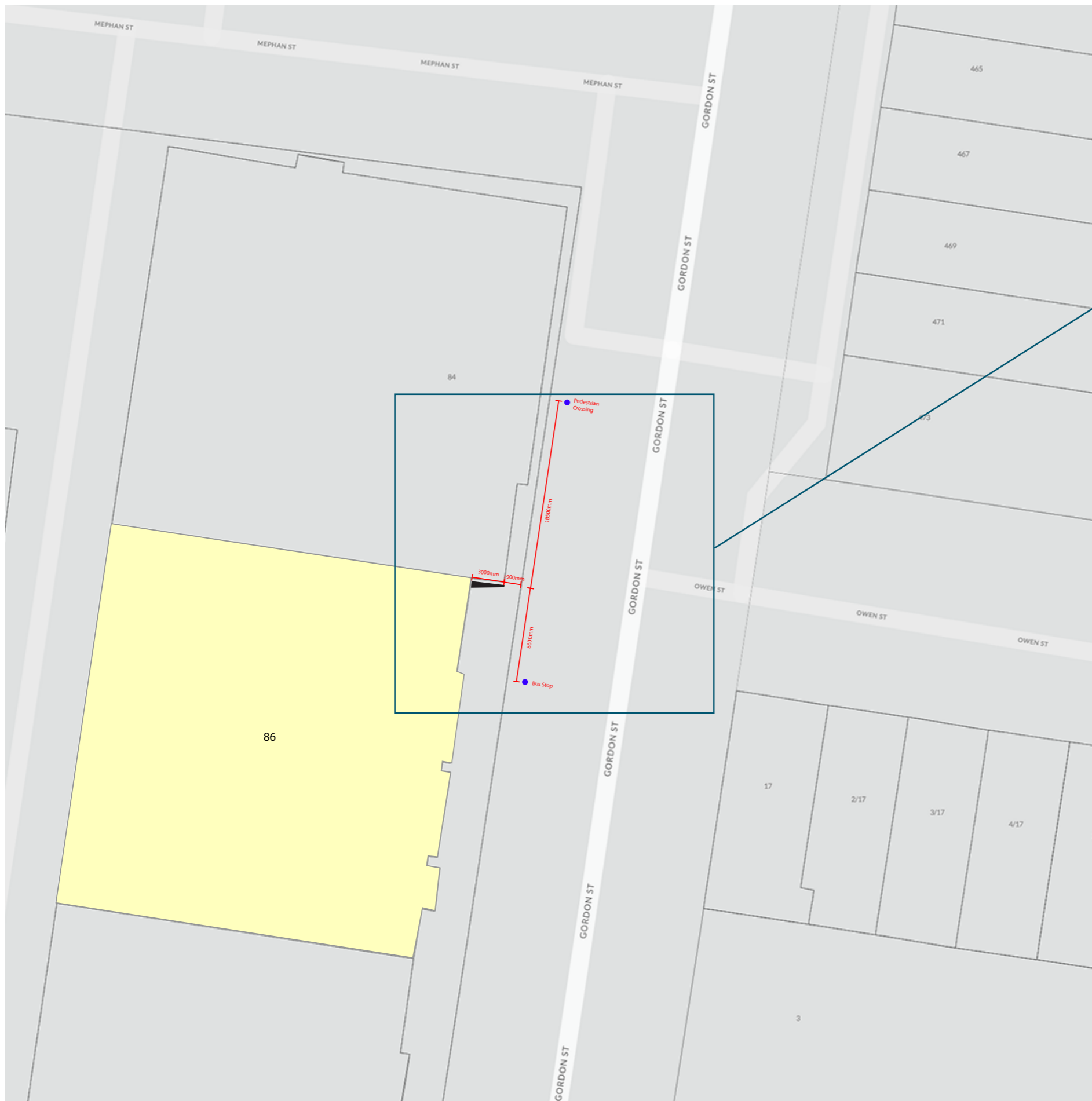
- g) During times of traffic congestion and slower vehicle speeds, we are satisfied that drivers viewing additional images is acceptable given slower vehicle speeds and the lack of critical driving tasks within the vicinity of the proposed sign.
- h) The proposed sign satisfies the decision guidelines set out in Clause 52.05-8 (and DTP's Ten Point Safety Checklist) assuming that appropriate controls are in place to govern the promotional material which can be displayed on the electronic sign (for example using 'sound or motion' to activate the sign or interact with road users, along with advertisements which may contain of present time update information such as news or weather) to ensure that the advertisement displayed is not reflective, animated or flashing, and does not provide an instruction which could dazzle, distract or confuse motorists.
- i) There are no traffic engineering reasons why a permit for an electronic sign at 86 Gordon Street, Maribyrnong should not be granted.



# Appendix A

## Development Plans





REV.	DATE	DESCRIPTION



## BLOCK PLAN

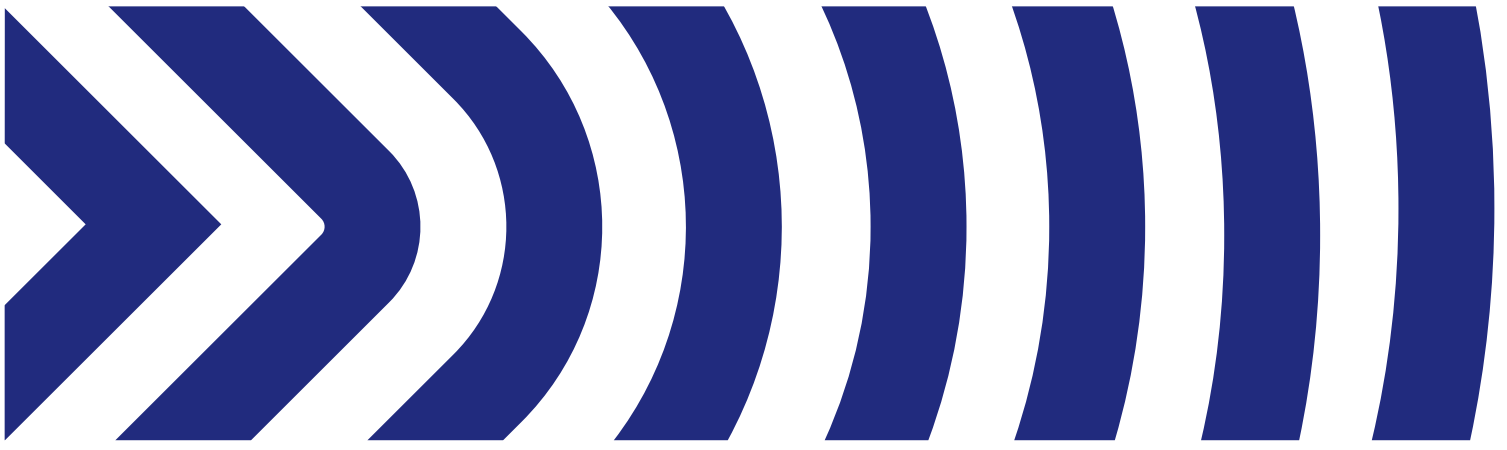
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7 WURUNDJERI DRIVE, EPPING, VIC 3076  
 TEL: (03) 9422 1288  
 WWW.LEDMEDIA.COM.AU

Proposed Electronic Sign  
 86 Gordon Street, Maribyrnong, 3032

DRAWN Matt Fox	DATE 20/07/23	SCALE	SHEET SIZE A3	JOB NO 36054	DRG 4
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# Appendix B

## Crash Analysis

## Casualty Crash History

Table B1 details the locations of casualty crashes recorded over the 5 year period (1<sup>st</sup> May, 2015 and 30<sup>th</sup> April, 2020) for the northbound approach along Gordon Street. Crashes were only included in the area in which the sign was visible, and not when it was obscured out of view.

Figure B1 identifies the locations of the crashes with respect to the visibility and legibility of the proposed sign.

Table B1: Casualty crash history (1<sup>st</sup> May, 2015 to 30<sup>th</sup> April, 2020)

Location	Date	Time	Severity	Type (DCA code)	Type of Accident	Sign Visible & Legible?
<u>Location 1</u> Gordon Street, 55m south of Owen Street	Wednesday 12/02/2020	06:50	OI	163 (B)	Northbound cyclist strikes door of parked/stationary vehicle.	Sign visible, but outside drivers' 10° cone of reading vision.
<u>Location 2</u> Gordon Street / Owen Street intersection	Tuesday 05/05/2020	06:15	OI	113 (B)	Right near (intersections only) involving a north-westbound vehicle and two south-westbound cyclists.	Sign is visible and readable.

LEGEND:

OI:	Other Injury	SI:	Serious Injury	F:	Fatality
(B):	Bicyclist	(M):	Motorcyclist	(P):	Pedestrian
(C):	Bus/Coach	(RT):	Rigid Truck	(ST):	Semi-trailer

## Summary

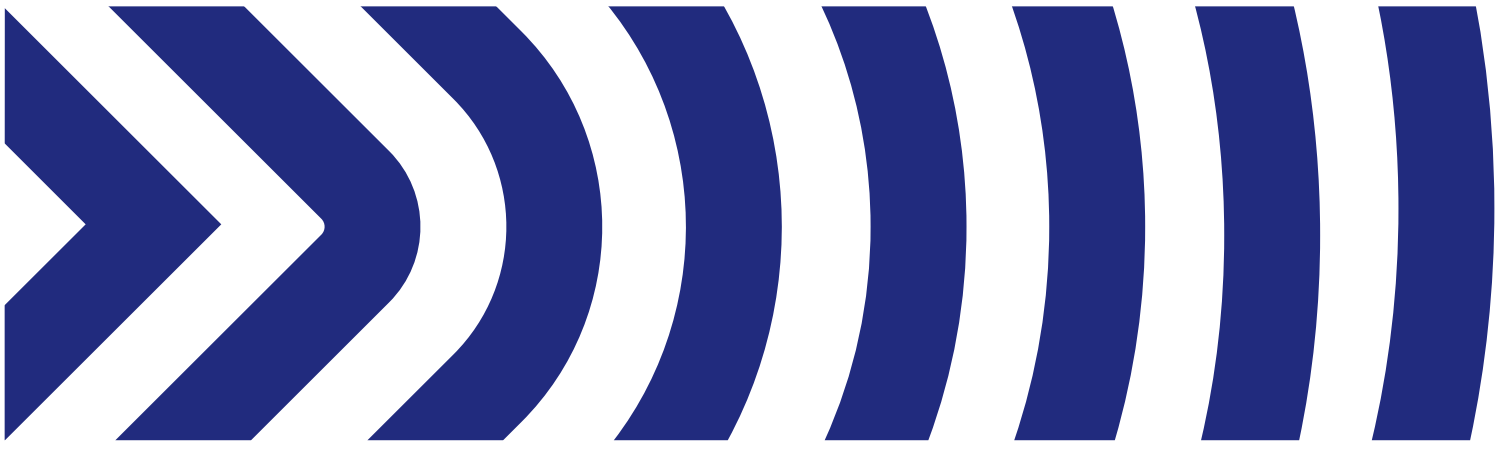
A total of two casualty crashes occurred on the northbound approach to the sign.

Both of these crashes were of a different type, and occurred at different locations, and we are satisfied that there is no discernible crash pattern.

Overall, we are satisfied that the approach to the proposed electronic billboard is not inherently unsafe.



Figure B1: Crash location vs sign legibility/visibility – northbound approach



# Appendix C

Road Safety Research



## Technical References

The following statutory and technical references are relevant to this assessment:

- Clause 52.05-8 of the Planning Scheme.
- Austroads Research Report 2013, Impact of Roadside Advertising on Road Safety, Austroads, Sydney, NSW, AUS.
- Traffic Engineering and Management (2003) – Volume 2, Freeman, D. & Morgan, R., Institute of Transport Studies, Department of Civil Engineering, Monash University, Section 5.2.8 states that “once a sign falls outside of a line of vision 10 degrees either side or 5 degrees above the driver’s straight ahead line of vision, it can no longer be read comfortably”.
- Austroads Guide to Traffic Management Part 10: Traffic Control & Communication Devices (2009), which states “it is generally accepted that the normal range of lateral vision should be limited to 10° horizontally and 5° vertically” and “A sign location will generally be satisfactory if the sign is placed within the driver’s comfortable field of vision (10° either side of centre in the horizontal plane and 5° upward in the vertical plane) and has adequate legibility distance”.

The following considers the available road safety research on static electronic billboards. That is, digital billboards that display static images for a specified dwell time.

### Roadside Signage and Advertising

Extensive research has been undertaken in relation to signage within the road environment, including studies which examine the characteristics of signs that attract a driver’s attention and circumstances in which signs are processed as part of the overall driving task.

Key findings of studies relating to static signs that we consider to be of relevance are discussed below.

Research conducted by Hughes and Cole<sup>3</sup> and reported by the Australian Road Research Board in 1985 states “drivers have a 30% to 50% spare capacity which they devote to attending to objects not related to the driving task”. The research continued to state that “Thus it seems likely that present traffic engineering practices within typical road environments are such that traffic control devices attract only 15% to 20% of the driver’s “total” attention”. The study found that if advertising signs were limited or removed from the road environment that drivers would still report (look at) other objects unrelated to the driving task.

A study by Cole<sup>4</sup> in 1972 found that the role of signage colour is that of identifying an object and conveying information as a colour code. By example, this means that green and white signage as typically installed on freeways, or blue and yellow signage on tollways would be recognised by motorists as conveying directional information based on its colour code.

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<sup>3</sup> Source: Hughes, P. K. and Cole, B. L. 1985, ‘What attracts attention when driving?’ Ergonomics, Vol. 29, Issue. 3.

<sup>4</sup> Source: Cole, B. L. 1972, ‘Visual aspects of road engineering’, Proceedings 6th ARRB Conference, Vol. 6 (1).

This is further reinforced in the Austroads Guide to Traffic Management Part 10: Traffic Control & Communication Devices (2009), which states:

*Except for the distinctive shape of some critical regulatory signs (e.g. octagonal stop signs) and warning signs (diamond shape), colour is the most important characteristic that enables early driver recognition of signs.*

For this reason, Clause 52.05-9 (Major promotion sign) requires that a permit issued for a 'major promotion sign' must include conditions that specify:

*That the sign must not:*

- Dazzle or distract drivers due to its colouring.
- Be able to be mistaken for a traffic signal because it has, for example, red circles, octagons, crosses or triangles.
- Be able to be mistaken as an instruction to drivers.

A review of previous studies by Jenkins found that for traffic control signs to be noticed, the important variables which determine conspicuity of the sign are its contrast with the immediate surroundings and the complexity of the background and that the placement of the sign needs to be within 10 degrees of the driver's line of sight. Various studies have found this to be particularly relevant for reading purposes. The relevant technical guidelines for road signs report that it is generally accepted that the normal range of lateral vision and the driver's comfortable field of vision should be limited to 10 degrees horizontally and 5 degrees vertically.<sup>5</sup>

Objects are also able to be detected in the peripheral vision field being 60 degrees above and 70 degrees below the line of sight, and 20 degrees left and right at a speed of 100km/h.<sup>6</sup>

Research also indicates that as drivers become overloaded with inputs to the driving task they shed part of the input demand to focus on that which is judged to be more important.

Drivers have an average reaction time to stimulus of around 2.5 seconds.<sup>7,8</sup> If the driver is provided with prior warning (such as advanced direction signs), the reaction time can be reduced.

### **Relationship between Advertising Signs and Accident Statistics**

Extensive investigation has been undertaken by David Andreassen initially in 1984<sup>9</sup> and further in 2000<sup>10</sup> to examine the relationship between billboards and traffic crashes. Andreassen's 1984 investigations were based on crash studies from the USA and Perth in Australia, while the 2000 investigations reviewed material specifically in relation to billboards and almost exclusively in the Australian context.

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<sup>5</sup> Source: Austroads Guide to Traffic Management Part 10: Traffic Control & Communication Devices (2009).

<sup>6</sup> Source: Ogden, K. 2003, Traffic Engineering and Management – Volume 1, Institute of Transport Studies, Department of Civil Engineering, Monash University, Section 2.1.10.

<sup>7</sup> Source: Garber, N.J. and Hoel, L.A. 2000, 'Traffic and Highway Engineering', p60.

<sup>8</sup> Source: Austroads Guide to Traffic Management Part 10: Traffic Control & Communication Devices (2009).

<sup>9</sup> Source: Andreassen, D. C. 1984, 'Traffic Accidents and Advertising Signs', Australian Road Research Board, Internal Report, AIR 000-213.

<sup>10</sup> Source: Andreassen, D. C. 2000, 'Billboards and traffic crashes'.

Andreassen's 2000 report confirmed that:

- No significant driver distraction effect could be ascertained for billboard signs.
- No effect on crashes could be determined as a result of installing billboards.

Most of the research on the issue of driver distraction and advertising signs in more recent times (including advances in updating decision guidelines for advertising signs) has been focused on the emergence of digital technology and the use of electronic billboards that enable advertising displays to change frequently and potentially contain motion.<sup>11</sup>

A study conducted by the Ministry of Transport in New Zealand for 2012 identified the factors contributing to road crashes for the 2012 calendar year that resulted in someone being killed or injured.<sup>12</sup> The report identified that approximately two-thirds of crashes are reported to the New Zealand Transport Agency (NZTA) and a subsequent Traffic Crash Report (TCR) is completed by a police officer. The reports are then examined and coded into the Crash Analysis System (CAS).

A study conducted by the Ministry of Transport in New Zealand for 2012 identified the factors contributing to road crashes for the 2012 calendar year that resulted in someone being killed or injured. The report identified that approximately two-thirds of crashes are reported to the New Zealand Transport Agency (NZTA) and a subsequent Traffic Crash Report (TCR) is completed by a police officer. The reports are then examined and coded into the Crash Analysis System (CAS).

The relevance of the New Zealand data is that the police accident reports include a detailed list of contributing factors, which is not available in similar reporting of casualty road crashes by Australian road agencies.

The New Zealand study identified that approximately 11.8% of casualty crashes involved 'attention diverted' as a contributing factor to the crash (noting that each crash report may involve several factors coded against each road user involved in the crash).

As shown in the Table below, of the reported casualty crashes identified as involving 'attention diverted' as one of the contributing factors, the main source of driver distraction is due to internal sources of distraction (47.4%), such as fellow passengers, reaching for the glove box and cell phones.

Of those crashes that included external sources of distraction as a factor (35.8%), the primary conflict factors were other traffic, scenery/persons outside the vehicle and drivers becoming dazzled.

Importantly, only 0.3% of casualty crashes identified as involving 'attention diverted' as one of the contributing factors identified 'advertising or signs' as a contributing factor.

The remaining reported casualty crashes (16.7%) identified as involving 'attention diverted' as one of the contributing factors lacked sufficient information to categorise further.

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<sup>11</sup> Source: Austroads Research Report AP-R420-13, 2013, 'Impact of Roadside Advertising on Road Safety'.

<sup>12</sup> Source: Financial, Economic and Statistical Analysis, Ministry of Transport, 2012, 'Yearly Report 2013 - Motor Vehicle Crashes in New Zealand 2012. New Zealand: Ministry of Transport'.

Table C1: Factors Contributing to Crashes for 'Attention Diverted By' as a Vehicle Conflict Factor (Financial, Economic and Statistical Analysis, Ministry of Transport, 2012)

Attention Diverted by:	Number of Casualty Crashes involving this Contributing Factor	Percentage of Attention Diverted Crashes involving this Contributing Factor (%)
<b>Contributing Vehicle Conflict Factors</b>		
<b>External Sources</b>	<b>405</b>	<b>35.8%</b>
- Scenery or persons outside vehicle	120	10.6%
- Other traffic	165	14.6%
- Advertising or signs	3	0.3%
- Driver dazzled	117	10.4%
<b>Internal Sources</b>	<b>536</b>	<b>47.4%</b>
- Passengers	125	11.1%
- Animal or insect in vehicle	25	2.2%
- Trying to find intersection/house no.	39	3.5%
- Emotionally upset	92	8.1%
- Cigarette, radio, glove box etc.	184	16.3%
- Cell phone	59	5.2%
- Navigation devices	11	1%
- CB Radio/non-cell comms devices	1	0.1%
<b>Other</b>	<b>189</b>	<b>16.7%</b>
<b>Total</b>	<b>1130</b>	<b>100%</b>

The above data confirms advertising signs are not a statistically significant cause of road crashes in the New Zealand study. This data indicates that of the 11.8% of casualty crashes that involved 'attention diverted' as a contributing factor, only 0.3% identified 'advertising or signs' as a factor. That is, a factor in less than 0.04% of total casualty crashes.

Importantly, the study also identified that casualty crashes involving 'attention diverted' factors (from internal or external causes) are significantly fewer in number when compared to other major contributing factors such as speeding relative to the roadway conditions, driving under the influence of alcohol or drugs and losing control of the vehicle.

These findings confirm the conclusions from the AustRoads Research Report, which concludes:

*Some of the riskiest kinds of inattentive driving that contributed to crashes and near crashes in the Klauer et al. (2006) study originated from either drowsiness or in-vehicle distractions. Importantly, looking at an external object exhibited the second highest significant odds ratio of all distractions, (reaching for a moving object produced the highest significant odds ratio) with a driver 3.7 times more likely to have a crash or near crash when looking at an external object. However this kind of distraction accounted for less than 1% of all crashes and near crashes in the study. Thus while looking at an external object appears to be quite risky behaviour when it is engaged in, it is not a frequent cause of crashes overall.*

### Relationship between Driver Performance and Billboards

#### Overseas research

A study was undertaken by Virginia Tech Transportation Institute in 2003<sup>13,14</sup> to determine whether there is any change in driver behaviour in the presence or absence of billboards. The study involved detailed observation of participant's driving behaviour along a selected route with billboards, comparison sites with logo signs, on-premises signs, etc. and baseline sites with no visual elements. The factors observed included driver's eye glance, vehicle speed and lane deviation.

The study report concludes as follows:

*The presence of billboards does not cause a change in driver behaviour in terms of visual behaviour, speed maintenance, or lane keeping. A rigorous examination of individual billboards that could be considered to be the most visually attention-getting demonstrated no relationship between glance location and billboard location. Driving performance measures in the presence of these specific billboards generally showed less speed variation and lane deviation. Thus, neither visual behaviour nor driving behaviour changes, even in the presence of the most visually attention-getting billboards.*

A study was undertaken by Virginia Tech Transportation Institute in 2007<sup>15,16</sup> to evaluate driving performance in the presence of conventional billboards, as well as digital billboards. The study involved conducting a naturalistic study with 36 drivers who were tasked with driving a 50-mile route which contained a number of types of billboards and comparison sites. The drivers were not informed of the true purpose of the experiment and a number of key indicators such as eye glance performance, speed maintenance and lane keeping were measured.

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<sup>13</sup> Source: Lee, S.E., Olsen, E.C.B and DeHart, M.C. 2003, 'Driving Performance in the Presence and Absence of Billboards'.

<sup>14</sup> It is noted that this study included 3 electronic billboards, which equated to approximately 10% of the sampled billboards. This study discusses that due to the few number of electronic billboards studied along the driving route, no conclusions regarding driver behaviour in the presence of this type of billboard can be drawn.

<sup>15</sup> Source: Lee, S.E., McElheny, M.J. and Gibbons, R. 2007, 'Driver Performance and Digital Billboard: Final Report Prepared for Foundation for Outdoor Advertising Research and Education'.

<sup>16</sup> It is noted that this study included 44 sites in total, comprising 15 conventional billboards, 12 comparison sites (including on-premises signs – some with digital elements, logo placards, landmark buildings and murals), 12 baseline sites (sites with no signs) and 5 digital billboards.

The following results were found:

- The mean number of glances (to any location) during an event was 5.73 for conventional billboards, which was comparable to comparison sites (i.e. landmarks, on-premises signs) (5.75), baseline sites (i.e. sites with no signs) (5.48) and for digital billboards (5.46).
- The glance duration (seconds) in the direction of events was 0.73 seconds for conventional billboards, which was comparable to comparison sites (0.87 seconds), baseline sites (0.63 seconds) and digital billboards (0.92 seconds).
- Percent eyes-on-road was found to be 74.1% for conventional billboards, 76.7% for baseline, 70.1% for comparison sites and 75.5% for digital billboards. Conventional billboards were found to be similar to baseline sites and digital billboards.
- Lane deviation from the centreline was found to be similar between conventional billboards (19.17 inches) and digital billboards (20 inches), while comparison sites (17.66 inches) and baseline sites (17.28 inches) were also similar to each other.
- Speed deviation was found to be similar between conventional billboards (0.72 MPH) and digital billboards (0.71 MPH), while comparison sites (0.66 MPH) and baseline sites (0.65 MPH) were also similar to each other.

Crundall et al in 2006<sup>17</sup> found that street level advertisements attracted more attention than raised advertisements when drivers were instructed to look for hazards. Crundall et al suggests that this is because street level advertisements fall within the normal window within which drivers habitually scan for hazards and that advertisements within this window are inappropriately capturing attention.

Klauer et al in 2006<sup>18</sup> found that "Total eyes-off-road durations of greater than 2 seconds significantly increased individual near-crash/crash risk whereas eye-glance durations for less than 2 seconds did not significantly increase crash risk relative to normal, baseline driving." Klauer et al also goes on to say that "if the task is simple and requires a short glance, the risk is only elevated slightly, if at all". It is also likely that movement or changes in luminance will involuntarily capture attention and that particularly salient emotional and engaging material will recruit attention to the detriment of driver performance.

### Australian Research

A study was undertaken by the Monash University Accident Research Centre (MUARC) in 2015<sup>19,20</sup> to examine how static advertising billboards affect drivers' situation awareness and driving in a freeway environment. The study involved 19 drivers who were tasked with driving an instrumented vehicle around a 38km urban test route in Melbourne comprising a number of static roadside billboards. Drivers provided continuous verbal protocols throughout the

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<sup>17</sup> Source: Crundall, C., Van Loon, E. and Underwood, G., 2006, 'Attraction and distraction of attention with roadside advertisements', Accident Research Unit, School of Psychology, University of Nottingham, Nottingham, UK.

<sup>18</sup> Source: Klauer, S.G., Dingus, T.A., Neale, V.L., Sudweeks, J.D. and Ramsey, D.J., 2006, 'The impact of driver inattention on near-cash/crash risk: An analysis using the 100-car Naturalistic Driving Study data', report DOT HS 810 594.

<sup>19</sup> Source: Young, K.L., Stephens, A.N., Logan, D.B. and Lenné, M.G., Monash University Accident Research Centre (MUARC), 2015, An on-road study of the effect of roadside advertising on driving performance and situation awareness, 4th International Driver Distraction and Inattention Conference, Sydney, New South Wales, Australia.

<sup>20</sup> This study analyses only the freeway section of the drive. This section included two static billboards: one located on the left side of the freeway (roadside) and one mounted on an overhead bridge (overpass).

drive. The factors observed included verbal protocol analysis, longitudinal control, lateral control and driver situation awareness.

The study discusses its results as follows:

*Overall, the results indicate that the billboards did not overly distract drivers to the extent that their driving performance or observed behaviour diminished significantly.*

*Drivers did mention the billboards as part of their verbal protocols; however, there was a strong trend for drivers to mention the billboards only when driving demand was low, such as when travelling on the freeway in medium density free-flowing traffic.*

The study continues on to report the following key findings:

*Drivers directing relatively less attention towards billboards in higher workload driving conditions (at least on the freeway) may be due to unconscious attentional narrowing as a result of increased driving demand. However, it may also point to a form of driver self-regulation, whereby drivers are capable of adapting their visual and cognitive attention in relation to billboards, paying more attention to them when driving is less demanding and paying less attention when demand increases, such as when performing a manoeuvre (in this case exiting the freeway). This explanation is in line with a number of research studies that have examined the impact of static and electronic billboards on driver behaviour and attention and found that billboard-related distraction appears to be regulated by drivers across different road environments and levels of driving demand (see review by Decker et al., 2015)<sup>21</sup>.*

This is further reinforced by Decker et al. (2015) which stated:

*Billboards did not appear to affect the overall percentage of time spent glancing at the forward roadway, and drivers seemed able to self-regulate their attention to billboards when they realized that the demands of the driving task had increased; for example, to attend to lead vehicles or to view navigation-related, regulatory, or warning signs. Furthermore, drivers tended to make several short, consecutive glances to billboards rather than fewer, longer glances. The mean length of these glances probably do not suggest a traffic safety concern, especially because drivers may be able to attend to the forward roadway using peripheral vision even while glancing at a billboard. However, billboards may pose a considerable risk when PRTs (perception reaction time) near 0.75 s are required or when the driving task suddenly and unexpectedly becomes more difficult after a period of relatively low complexity.*

This study confirms that outdoor advertising is intended to be a 'glance medium', with only short glances required to read and interpret messages, which would not have a significant impact on road safety.

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<sup>21</sup> Decker, J.S., Stannard, S.J., McManus, B., Wittig, S.M.O., Sisiopiku, V.P. and Stavrinou, D., 2015, The Impact of Billboards on Driver Visual Behavior: A Systematic Literature Review, Traffic Injury Prevention 2015.

An on-road study reported by Samsa<sup>22,23</sup> involving 29 participants was undertaken in 2015 to compare drivers' eye fixations and driving performance when advertising signs (static billboards, digital billboards and on-premise signs) were present. Participants were fitted with tracking glasses and drove an instrumented vehicle along a 14.6km route in Brisbane.

The study discusses its findings as follows:

*Number of fixations and dwell times towards advertising signs were measured, along with lateral deviation and vehicle headway. The study found the average fixation durations for all signage types were well below 0.75 s, considered to be the minimum perception-reaction time to an unexpected event. There were no significant differences in average vehicle headway between the three signage types.*

*The findings show that digital billboards do not draw drivers' attention away from the road for dangerously long periods of time compared to the other signage types, and drivers maintained a safe average vehicle headway in the presence of these signs. Whilst average SDLP (average standard deviation of lane position) increased in the presence of billboards generally, digital billboards were not solely responsible for this result.*

As can be seen in the table below, the average and median fixations were well below the minimum perception-reaction time to an unexpected event (0.75 seconds).

Table C2: Fixation characteristics by signage type

Sign type	Average fixation (s)	Median (s)
Static billboard	0.225	0.165
Digital billboard	0.207	0.165
On-premise	0.199	0.165

### Relationship between Static Digital Billboards and Accident Statistics

A study was undertaken by Tantala and Tantala in 2010 on the relationship between digital billboards and traffic safety in the Greater Reading Area in Berks County, Pennsylvania, USA and reported on by the Outdoor Media Association (OMA) *2010 Discussion Paper: Digital Billboard and Road Safety: An Analysis of Current Policy and Research Findings*<sup>24</sup>. Tantala and Tantala's 2010 investigations examined eight years of traffic and crash data for roads near 26 digital billboards in the area, with most of the billboards containing static images (text and graphics) with a message dwell time (the length of time for which an image is displayed) of either 8 or 10 seconds, except for a six month period in 2006 when a number of the digital billboards contained message dwell times of 6 seconds. The overall conclusion of the study was that the digital billboards had no statistically significant relationship with the occurrence of accidents and the results were consistent for 8 and 10 second dwell times. Further to their

<sup>22</sup> Source: Samsa, C., Samsa Consulting, 2015, 'Digital billboards 'down under'. Are they distracting to drivers and can industry and regulators work together for a successful road safety outcome?', 4th International Driver Distraction and Inattention Conference, Sydney, New South Wales, Australia.

<sup>23</sup> It is noted that a total of 21 static billboards and a large number of on-premise signs were located within the analysed road segments for comparison with the 4 digital billboards within the review area.

<sup>24</sup> Source: Outdoor Media Association 2010, Discussion paper: Digital billboard and road safety: an analysis of current policy and research findings, OMA, Sydney, NSW, AUS.



findings, the total number of accidents after the conversion of the signs to digital billboards was approximately equivalent to what would have been statistically expected without the introduction of digital technology.

A second study was undertaken by Tantala and Tantala in 2010 on the relationship between digital billboards and traffic safety in Albuquerque, New Mexico, USA and was reported on by the Outdoor Media Association (OMA) *2010 Discussion Paper: Digital Billboard and Road Safety: An Analysis of Current Policy and Research Findings*<sup>25</sup>. The investigations examined traffic and crash data for a seven-year period for local roads near 17 existing digital billboards which had been converted from traditional PVC billboards between 2006 and 2007 and displayed a static image with a message dwell time of 8 seconds. The analysis found that the 17 digital billboards have no statistically significant relationship with crashes, with crash rates near five digital billboards decreasing by 0.3% within 0.6 miles over an average six year period. Crash rates had not increased following the conversion of the signs to digital billboards.

A study by Wachtel in 2009<sup>26</sup> reviewed the findings of 43 studies conducted between 1984 and 2008 on the possible road safety impacts of both traditional and digital billboards. The conclusions drawn from this study as reported within the OMA discussion paper<sup>27</sup> included that no definitive conclusions can be made about the presence or strength of adverse road safety impacts from digital billboards and that although some studies found a relationship between outdoor advertising signs and deterioration in driving performance, other studies found no such relationship. Wachtel also provided some guidelines for digital billboards, including that the interval between successive displays should essentially be zero and that digital signs should be prohibited near locations where drivers must make critical decisions.

### Static Electronic Billboard Design Recommendations

*Austroads Research Report 2013, Impact of Roadside Advertising on Road Safety, Austroads*<sup>28</sup>, was conducted with the aims to:

- Review the extant literature on the distraction risk associated with roadside advertising.
- Document and review the existing guidelines across road agencies so that inconsistencies and gaps could be identified.
- Inform guiding principles and make guidance recommendations that can be used to create guidelines and harmonise guidelines across road agencies.

The Austroads guidance recommendations for static electronic billboards developed in this report are detailed in the table below.

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<sup>25</sup> Source: Outdoor Media Association 2010, Discussion paper: Digital billboard and road safety: an analysis of current policy and research findings, OMA, Sydney, NSW, AUS.

<sup>26</sup> Source: Wachtel, J., 2009, 'Research for AASHTO Standing Committee on Highways task 256: safety impacts of the emerging digital display technology for outdoor advertising signs, National Cooperative Highway Research Program, Washington, DC, USA.

<sup>27</sup> Source: Outdoor Media Association 2010, Discussion paper: Digital billboard and road safety: an analysis of current policy and research findings, OMA, Sydney, NSW, AUS.

<sup>28</sup> Source: Austroads Research Report 2013, Impact of Roadside Advertising on Road Safety, Austroads, Sydney, NSW, AUS.

Table C3: Austroads Research Report: Impact of Roadside Advertising on Road Safety (2013) - Digital Billboard Recommendations

Criteria	Recommendations
Movement	Roadside advertising should not contain movement, changes in luminance or any effects that create the illusion of movement.
Flashing lights	Roadside advertising should not contain flashing, blinking, revolving, pulsating or intermittent lights.
Dwell time	No specific measure is provided other than that the goal is to limit the number of message changes that drivers are exposed to.
Transition time	Messages should change instantaneously.
Message sequencing	Sequencing of messages should be prohibited.
Colour	Advertising devices should not be coloured like an official traffic sign or signal.
Information content/ meaning	Advertising devices should not imitate traffic control devices or give instructions to traffic. They should not contain extreme emotional material.
Luminance levels	Luminance levels should not exceed those of static signs in typical ambient light conditions.
Dimensions	Not to be shaped like an official traffic sign or device.
Longitudinal placement	Should not be located in such a way that they might interfere with the effectiveness of traffic control devices.
Lateral placement	Should not be placed so that drivers must divert their gaze from the forward roadway.
Vertical placement	Should be elevated above the height of vehicles, but not so high that they draw the gaze away from the forward roadway.
Orientation	Advertising devices should be orientated to facilitate legibility from the maximum legibility distance and across the full approach distance.
Sight distance	The sight distance must correspond to the required legibility distance so that drivers have enough time to comprehend the message on approach.

The Outdoor Media Association (OMA) 2010 Discussion Paper: Digital Billboard and Road Safety: An Analysis of Current Policy and Research Findings<sup>29</sup> has also provided recommendations in the following areas as detailed in the table below.

<sup>29</sup> Source: Outdoor Media Association 2010, Discussion paper: Digital billboard and road safety: an analysis of current policy and research findings, OMA, Sydney, NSW, AUS.

Table C4: OMA 2010 Discussion Paper digital billboard recommendations

Criteria	Recommendations
Dwell time	Each message shall remain fixed for a maximum 8 seconds, with 5-7 seconds being the recommended dwell time depending on the sign's location.
Transition time	The transition time between messages shall be no longer than 1 second.
Message sequencing	No message sequencing is to be permitted.
Colour	Advertisements should not be dominated by the colours red, yellow or green in combination if it is located near traffic signals.
Luminance levels	The light emitted shall not exceed certain thresholds and must have automatic dimming capabilities.

The OMA 2010 discussion paper also reported that in London, UK, the UK Outdoor Advertising Association developed a code that stated that digital roadside billboards should not change more frequently than every 5 seconds unless consent is granted.

The paper also indicates that the Federal Highway Administration, USA provides guidance on digital billboards to ensure national consistency is achieved. Recommendations include a dwell time between 4 and 10 seconds (with 8 seconds being recommended) and a transition time of between 1 and 2 seconds. It was also recommended that message brightness should automatically respond to changing light levels.



# Appendix D

**Austrroads Standards**

**Austroads Standards**

It is important to understand how the sign is viewed.

The Austroads Guide to Traffic Management Part 10: Traffic Control and Communication Devices includes a method for determining the legibility distance required of a traffic sign. This is represented diagrammatically at Figure C1 below.

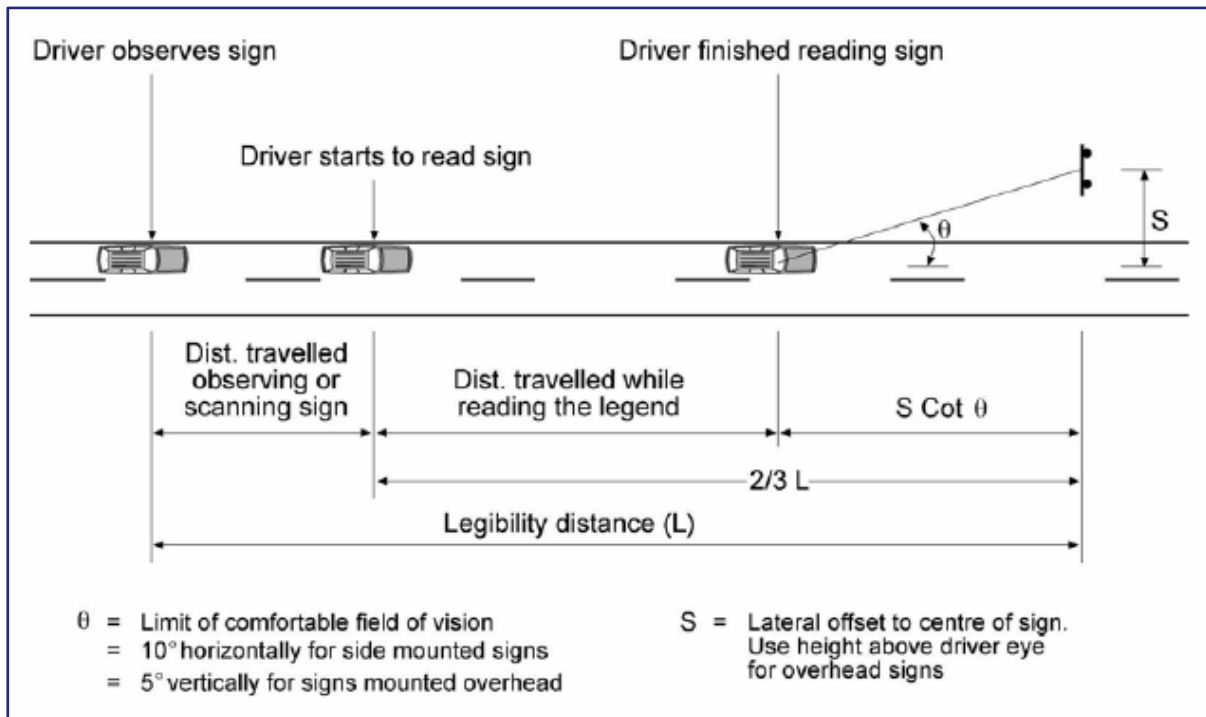


Figure D1: Austroads Guide to Traffic Management Part 10: Traffic Control and Communication Devices – Figure 4.3

This method of calculating the sign reading task breaks up the legibility distance into 3 parts, namely:

- the distance travelled while observing or scanning the sign,
- the distance travelled while reading the sign, and
- the distance in close proximity to the site where the sign is no longer in the driver's cone of vision and is no longer being read by the driver.

The Austroads Guide states that the time taken to read a sign containing up to 5 words is calculated by:

Equation 1:

$$T = 0.25N \text{ seconds}$$

Where N is the number words in the sign

The legibility distance required for a side-mounted road sign can be calculated using the following equation provided in the Austroads Guide:

Equation 2:

$$L = 0.105NV + 8.55S$$

Where L is the legibility required

N is the number of words (for 2 to 5 words)

V is travel speed of vehicles approaching the sign in km/h

S is the lateral or vertical displacement of the centre of the sign from the centre of the traffic lane, or above the driver eye height, for side or overhead mounted signs respectively.