



Pacific Highway, Hornsby

Digital Sign Safety Assessment

Prepared for:
JCDecaux

18 July 2023

The Transport Planning Partnership

Pacific Highway, Hornsby

Digital Sign Safety Assessment

Client: JCDecaux

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APPENDICES

A. STATE ENVIRONMENTAL PLANNING POLICY (INDUSTRY AND EMPLOYMENT) – SCHEDULE 5

1 Introduction

1.1 Overview

JCDecaux is seeking approval for the installation of a LED digital illuminated sign on the north-western corner of the Pacific Highway and Government Road intersection located in Hornsby. The proposed sign would face northbound travel lanes on Pacific Highway.

The Transport Planning Partnership (TPPP) has been commissioned by JCDecaux to undertake a signage safety assessment. This assessment has been carried out in accordance with Department of Planning's Transport Corridor Outdoor Advertising and Signage Guidelines, November 2017 (Guidelines) and State Environmental Planning Policy - Industry and Employment (Industry and Employment SEPP).

The Guidelines outline best practice for the planning and design of outdoor advertisements in transport corridors. The Industry and Employment SEPP sets out rules regarding outdoor advertising signage for permissible locations and exempt developments.

1.2 Purpose of this Report

The aim of this assessment is to determine the suitability of the proposed digital sign and provide recommendations on mitigation measures to alleviate impacts on the surrounding road network. This report sets out the findings of TPPP's signage safety assessment for the proposed digital sign on Pacific Highway. The following items have been considered in this report:

- Potential for the sign to obstruct or distract a driver's view of the road, traffic control devices, and merge/diverge points at entry and exit ramps.
- Distance from upstream or downstream decision points such as merge and exit ramps.
- Potential for the sign to distract at a critical or for an extended period of time.
- Location relative to the carriageway and its potential to be a physical obstruction for vehicles or other road users.
- Appropriate dwell times based on the speed environment.
- Location in relation to other signage.

1.3 References

In preparing this report, reference has been made to the following:

- An inspection of the sign location from a driving viewpoint along the Pacific Highway carried out on Thursday 2 February 2023.

- Austroads Guide to Road Design Part 3, Geometric Design, 2016.
- Transport Corridor Outdoor Advertising and Signage Guidelines, November 2017 by Department of Planning and Environment.
- State Environmental Planning Policy - Industry and Employment (Industry and Employment SEPP)

2 Proposal Description

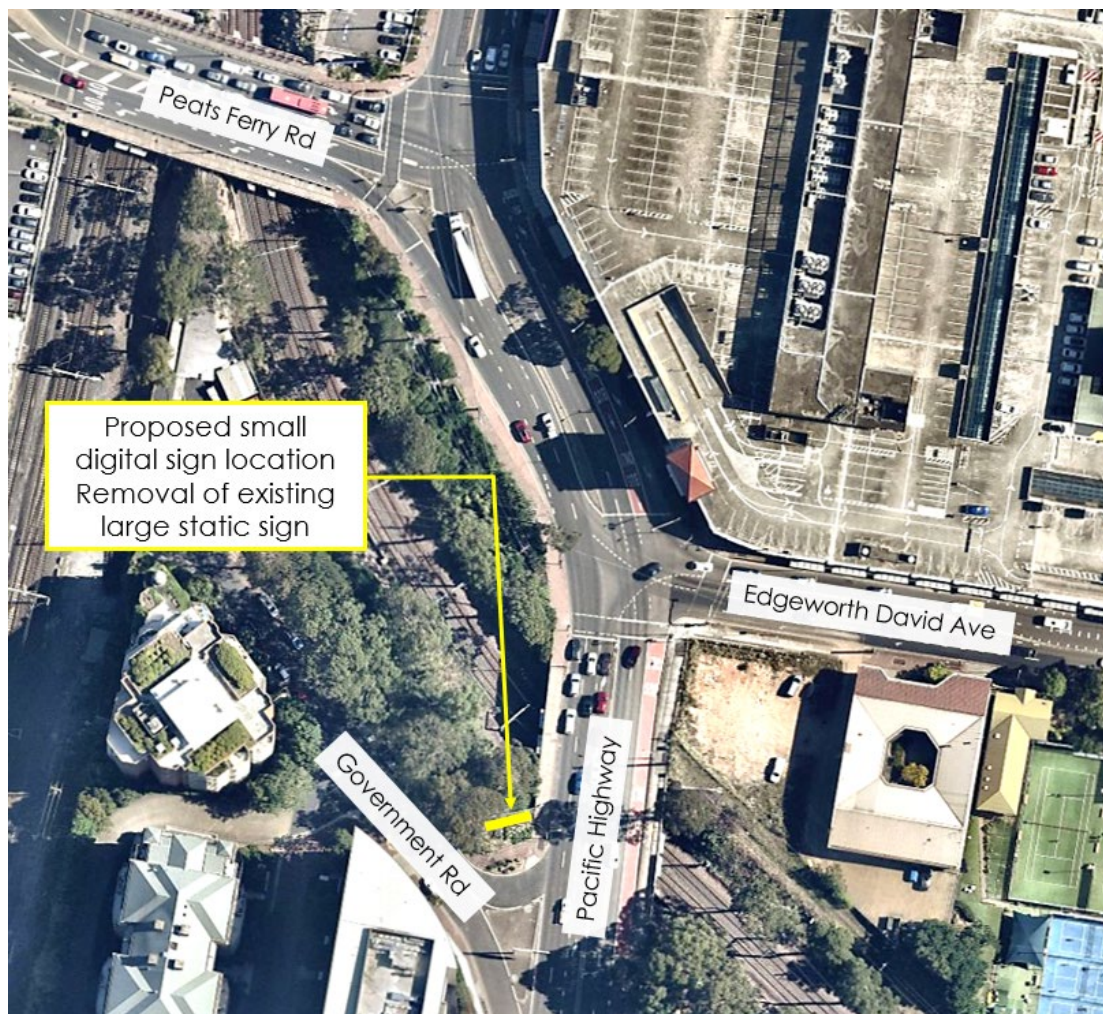
2.1 Location Details

A new digital sign is proposed to be installed on the north-western corner of the Pacific Highway and Government Road intersection in Hornsby. There is an existing non-digital (static) sign in the same location as the proposed digital sign. The existing static sign which is backlit, and has a width of 12.660 m and a height of 3.350 m (42.41 m² area).

The sign is located on the Pacific Highway corridor which has a posted speed limit sign of 60 km/h. In the vicinity of the proposed sign, Pacific Highway has two northbound through travel lanes and one short dedicated right turn lane approximately 220 m in length extending from Edgeworth David Avenue. A short left turn slip lane from Pacific Highway to Government Road commences approximately 60m south of the proposed digital sign.

An aerial image of the sign location and surrounding environs is shown in Figure 2-1.

Figure 2-1: Signage Location



Basemap source: NearMap, aerial imagery dated 8 February 2023

2.2 Description of Proposed Signage

As per the Industry and Employment SEPP, the advertising display area is defined as follows:

“advertising display area means, subject to subclause (2), the area of an advertisement or advertising structure used for signage, and includes any borders of, or surrounds to, the advertisement or advertising structure, but does not include safety devices, platforms or lighting devices associated with advertisements or advertising structures.”

On the above basis, the advertising display area of the proposed digital sign would be 14.93 m² (3.172 m width by 4.708 m height). The visual display area (the screen alone) would be 14.16 m² (3.072 m width by 4.608 m height).

The digital screen would be installed on a column (a monopole-like structure) set upon a steel cladding which would visually appear as a thin border around the visual screen. The base of the sign will be elevated approximately 3.35m above the road surface of Pacific Highway.

The proposed digital sign would be used by JCDecaux to promote its sponsors and third-party advertising. The digital sign would contain text and images.

2.3 Signage Exposure

The proposed digital sign would be visible to northbound traffic travelling on the Pacific Highway near Government Road, as shown in Figure 2-2.

A site visit was undertaken on Thursday 2 February 2023 to inspect driver sight distances on approach to the proposed digital sign location and observe any potential crash hazards likely to result from the proposed digital sign. A description of the site investigation findings is provided herein.

Figure 2-2: Pacific Highway Northbound (approaching Edgeworth David Avenue)



Source: Photograph taken by TTPP on 02/02/2023

2.3.1 Pacific Highway South Approach (Northbound Direction)

The lane configuration on the Pacific Highway northbound carriageway in the vicinity of the proposed digital sign is shown in Figure 2-3. The northbound through travel lanes and dedicated turn lanes are numbered and shown in Figure 2-3.

Figure 2-3: Pacific Highway Northbound Lane Configuration



- There is no digital sign within 150m from the proposed digital sign location.
- Beyond the proposed sign in the northbound direction, small static advertising signs are located on both sides of the Pacific Highway bridge as well as on the Westfield Shopping Centre's building façade.
- There is an advance directional and information sign on an overhead gantry structure located approximately 20 m prior to the proposed digital sign facing northbound traffic. Based on our site inspection, the directional and information sign on the overhead gantry and the existing static sign do not overlap for motorists travelling northbound on Pacific Highway, hence the proposed digital sign would not obscure visibility of the directional and information sign.
- Treating the observed conditions during the site inspection as the typical conditions in the area, the digital sign would likely be visible in traffic lanes as follows:
 - In northbound through lane 1, 100 m from the sign
 - In northbound through lane 2, 105 m from the sign
 - In northbound right turn lane, 115 m from the sign
 - The Government Road left turn slip lane, 60m from the sign.
- The digital sign would become out of driving view approximately 5 m north of the proposed sign.

The likely visible distance and readable distance in each lane on approach to the sign is shown in Figure 2-4 to Figure 2-6.

Figure 2-4: Northbound Approach Sign Exposure – Through Lane 1



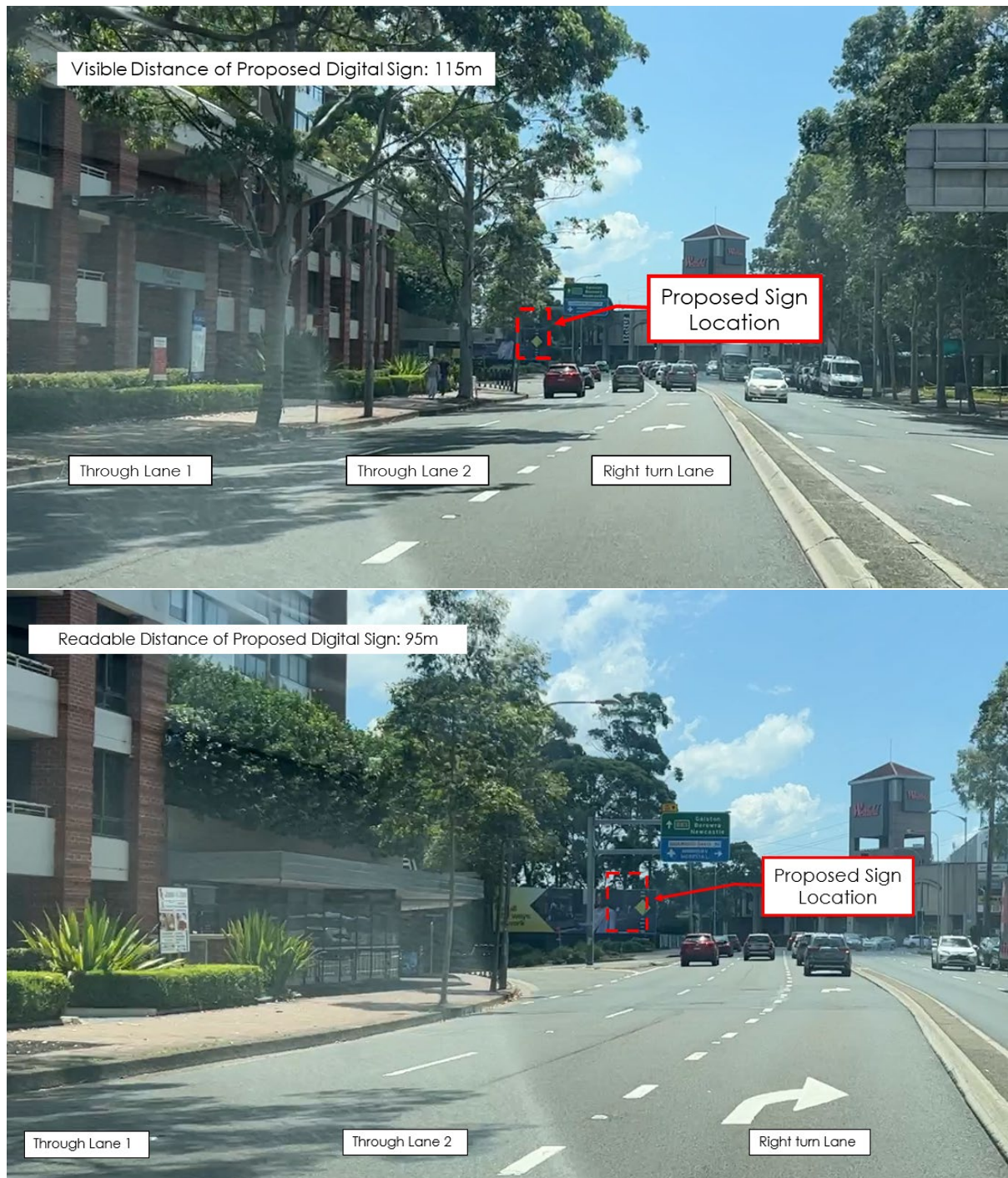
Source: Photograph taken by TTPP dated 02/02/2023

Figure 2-5: Northbound Approach Sign Exposure – Through Lane 2



Source: Photograph taken by TTPP dated 02/02/2023

Figure 2-6: Northbound Approach Sign Exposure – Right Turn Lane



Source: Photograph taken by TTPP dated 02/02/2023

The visible and readable distance for the left turn slip lane to Government Road is the same, as the lane commences approximately 60 m from the Pacific Highway kerbside northbound through lane.

2.4 Crash History

Historic crash data has been obtained from Transport for NSW (TfNSW) Sydney Crash Data and assessed for crash incidents on the Pacific Highway northbound lanes on approach to the proposed digital sign.

The left turn slip lane from Pacific Highway into Government Road, as well as the left turn slip lane from Government Road into Pacific Highway were also reviewed.

Crash history has been assessed for the most recent five-year period for data collated and published by TfNSW. This period is between 1 January 2017 and 31 December 2021.

Crash data has been reviewed within the **readable** distance of the proposed sign location which is up to approximately 95 m from the proposed digital sign. Within the readable distance in the northbound direction, there was only one crash record that resulted in a minor injury.

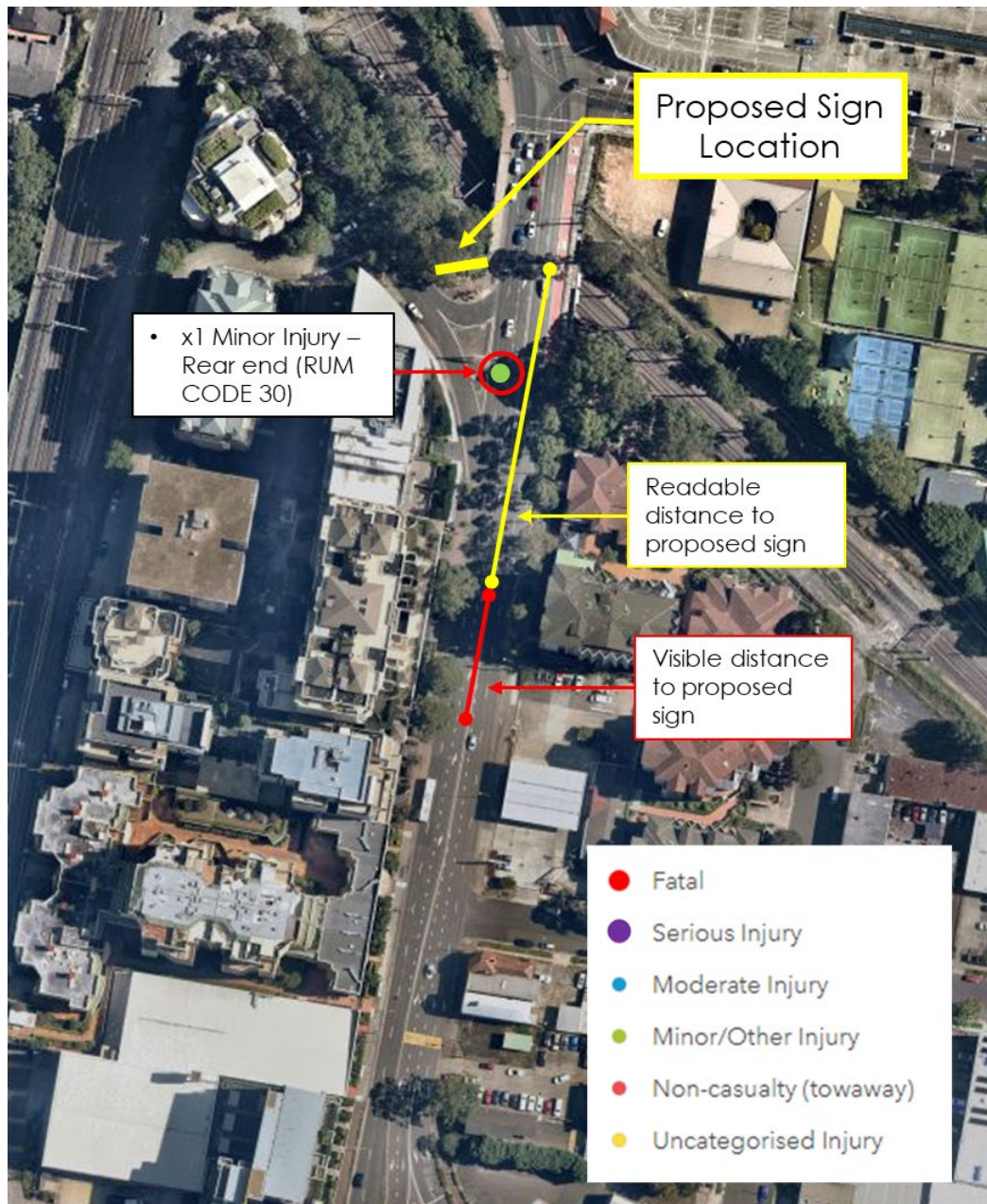
There was no other crash incident between the **visible distance** and the readable distance (i.e. remainder of the segment within the visible distance). The two slip left lanes along Government Road do not have any historic crash record as well within the 5-year period.

A summary of the crashes is presented in Table 2.1, while the crash location and incident description are illustrated in Figure 2-7.

Table 2.1: Crash Type and Severity

Location	Crash Type	Crash Severity (No. of Crashes)				
		Fatality	Serious Injury	Moderate Injury	Minor Injury	Non-casualty (tow-away)
Within readable distance of digital sign on Pacific Highway (approximately 5 - 95 m from proposed digital sign)	Rear End (RUM CODE 30)				1	
Within visible distance of digital sign on Pacific Highway (approximately 95 - 115 m from proposed digital sign)						
		Nil.	Nil.	Nil.	1	Nil.

Figure 2-7: Crash Location in Recent 5-Year Period



Data Source: Transport for NSW's Sydney Crash Data

3 Statutory Requirements

This section of the report assesses the compliance with the safety assessment criteria established in the NSW Guidelines and the State Environmental Planning Policy – Industry and Employment (Industry and Employment SEPP). It requires analysis as to whether the proposal would reduce the safety of:

- Any public roads
- Pedestrians and cyclists
- Pedestrians by obscuring sight lines from public areas.

The proposed design has been assessed against the relevant statutory requirements and guidelines. In order to assess any new installation against the key safety assessment criteria, a series of detailed criteria are set out in Section 3.2 *Advertisements and Road Safety* of the NSW Guidelines.

3.1 Industry and Employment SEPP – Schedule 5

Clauses 1 to 7 of the Industry and Employment SEPP – Schedule 5 refer to aspects that are unrelated to road safety, as outlined in Appendix A. However, Clause 8 is related to road safety, and thus, is covered under this signage safety assessment as follows:

- (a) Would the proposal reduce the safety for any public road?**
- (b) Would the proposal reduce the safety for pedestrians or bicyclists?**
- (c) Would the proposal reduce the safety for pedestrians, particularly children, by obscuring sightlines from public areas.**

The digital sign is proposed to be located on the western side of Pacific Highway, and on the northern side of Government Road. Site observation indicates that the existing static sign does not obscure visibility of both pedestrians and motorists.

Based on our site observation, pedestrian activity in the vicinity of the proposed sign is moderate due to the proximity to Hornsby Train Station and Westfield Shopping Centre.

Within the vicinity of the proposed sign, the pedestrian desire lines are indicatively shown in red in Figure 3-1. A pedestrian footpath is provided along Pacific Highway, whilst no formalised crossing facilities are provided across the Government Road left turn slip lanes.

The crash analysis discussed in Section 2.4 indicates that there was no crash incident that involved pedestrians or cyclists during the most recent 5-year period, indicating no crash in the vicinity that can be specifically associated with the existing static sign. Since the proposed digital sign would be maintained at the same position, the proposal is not likely to reduce safety for motorists, pedestrians or cyclists.

Figure 3-1: Pedestrian Desire Lines Near the Proposed Digital Sign



Assessment of the proposal in accordance with the Department of Planning's Transport Corridor Outdoor Advertising and Signage Guidelines has been undertaken in the following section.

3.2 Transport Corridor Outdoor Advertising and Signage Guidelines – Digital Signs Criteria (Section 2 of Guidelines)

The Transport Corridor Outdoor Advertising and Signage Guidelines specify criteria which are directly applicable to the assessment of digital signs. The criteria have been assessed in Table 3.1.

Some of the criteria are related to signage content and would need to be addressed by the operator. In addition, these criteria should be included as part of the consent conditions for the proposal to ensure future compliance.

Table 3.1: Digital Sign Criteria (Section 2 of Guidelines)

Criteria, for Signs greater than or equal to 20 m ²		Comments
A	<i>Each advertisement must be displayed in a completely static manner, without any motion, for the approved dwell time as per criterion (d) below.</i>	Relates to sign content only.
B	<i>Message sequencing designed to make a driver anticipate the next message is prohibited across images presented on a sign and across a series of signs.</i>	Relates to sign content only.
C	<i>The image must not be capable of being mistaken:</i> i. <i>for a prescribed traffic control device because it has, for example, red, amber or green circles, octagons, crosses or triangles or shapes or patterns that may result in the advertisement being mistaken for a prescribed traffic control device, or</i> ii. <i>as text providing driving instructions to drivers.</i>	Relates to sign content only.
D	<i>Dwell times for image display are:</i> i. <i>10 seconds for areas where the speed limit is below 80 km/h.</i> ii. <i>25 seconds for areas where the speed limit is 80 km/h and over.</i>	As detailed in Section 3.3.2.2 a dwell time of 10 seconds would typically be suitable for the proposed digital sign. However, it is recommended to increase the dwell time (e.g. up to 15 seconds) for the digital sign given that it is in close proximity to traffic signals.
E	<i>The transition time between messages must be no longer than 0.1seconds, and in the event of image failure, the default image must be a black screen.</i>	An almost instantaneous transition is likely to reduce the additional distraction potential for digital signs. It is assumed that this operational requirement would be met.
F	<i>Luminance levels must comply with the requirements in Section 3 (Transport Corridor Advertising Signage Guidelines).</i>	This sign would be classified as Zone 3. Zone 3 covers areas with generally medium off-street ambient lighting e.g. small to medium shopping/ commercial centres. Refer to the lighting assessment report for further information.
G	<i>The images displayed on the sign must not otherwise unreasonably dazzle or distract drivers without limitation to their colouring or contain flickering or flashing content.</i>	It is assumed that this operational requirement would be met.
H	<i>The amount of text and information supplied on a sign should be kept to a minimum (e.g. no more than a driver can read at a short glance).</i>	Relates to sign content only.

Criteria, for Signs greater than or equal to 20 m ²		Comments
I	Any signs that is within 250 metres of a classified road and is visible from a school zone must be switched to a fixed display during school zone hours.	The sign is <u>not</u> visible from within a school zone, and therefore, would not be required to be conditioned as so.
J	Each sign proposal must be assessed on a case by case basis including replacement of an existing fixed, scrolling or tri-vision sign with a digital sign and in the instance of a sign being visible from each direction, both directions for each location must be assessed on their own merits.	Noted.
K	At any time, including where the speed limit in the area of the sign is changed, if detrimental effect is identified on road safety post installation of a digital sign, RMS reserves the right to re-assess the site using an independent RMS-accredited road safety auditor. Any safety issues identified by the auditor and options for rectifying the issues are to be discussed between RMS and the sign owner and operator.	Noted.
L	Sign spacing should limit drivers' view to a single sign at any given time with a distance of no less than 150m between signs in any one corridor. Exemptions for low speed, high pedestrian zones or CBD zones would be assessed by RMS as part of their concurrence role.	Not applicable as the sign is less than 20 m ² . Criteria is applicable to signs greater than 20 m ² .
M	Signs greater than or equal to 20sqm must obtain RMS concurrence and must ensure the following minimum vertical clearances: i. 2.5m from lowest point of the sign above the road surface if located outside the clear zone ii. 5.5m from lowest point of the sign above the road surface if located within the clear zone (including shoulders and traffic lanes) or the deflection zone of a safety barrier if a safety barrier is installed. If attached to road infrastructure (such as an overpass), the sign must be located so that no portion of the advertising sign is lower than the minimum vertical clearance under the overpass or supporting structure at the corresponding location.	Not applicable as the sign is less than 20 m ² . Criteria is applicable to signs greater than 20 m ² .
N	An electronic log of a sign's operational activity must be maintained by the operator for the duration of the development consent and be available to the consent authority and/or RMS to allow a review of the sign's activity in case of a complaint.	Not applicable as sign less than 20 m ² . Criteria is applicable to signs greater than 20 m ² .
O	A road safety check which focuses on the effects of the placement and operation of all signs over 20sqm must be carried out in accordance with Part 3 of the RMS Guidelines for Road Safety Audit Practices after a 12-month period of operation but within 18 months of the signs' installation. The road safety check must be carried out by an independent RMS-accredited road safety auditor who did not contribute to the original application documentation. A copy of the report is to be provided to RMS and any safety concerns identified by the auditor relating to the operation or installation of the sign must be rectified by the applicant. In cases where the applicant is the RMS, the report is to be provided to the Department of Planning and Environment as well.	Not applicable as sign less than 20 m ² . Criteria is applicable to signs greater than 20 m ² .

3.3 Transport Corridor Outdoor Advertising and Signage Guidelines (Section 3 of Guidelines)

3.3.1 Sign Location Criteria

3.3.1.1 Road Clearance

(a) The advertisement must not create a physical obstruction or hazard. For example:

- i. **Does the sign obstruct the movement of pedestrians or bicycle riders? (e.g. telephone kiosks and other street furniture along roads and footpath areas).**
- ii. **Does the sign protrude below a bridge or other structure so it could be hit by trucks or other tall vehicles? Will the clearance between the road surface and the bottom of the sign meet appropriate road standards for that particular road?**
- iii. **Does the sign protrude laterally into the transport corridor so it could be hit by trucks or wide vehicles?**

The proposed digital sign would be installed on a column (a monopole-like structure) within the existing vegetated area on the north-western corner of the Pacific Highway and Government Road intersection. The edge of the proposed sign would be offset approximately 1m from the edge of the pedestrian footpath along Pacific Highway and approximately 4m from the road. The proposed sign would be approximately 4m from the edge of the pedestrian footpath along Government Road and approximately 8m from the road. Hence, the sign would not protrude over the pedestrian footpath and road carriageway. The sign would not physically obstruct any vehicle, pedestrian, and cyclist movements.

(b) Where the sign supports are not frangible (breakable), the sign must be placed outside the clear zone in an acceptable location in accordance with Austroads Guide to Road Design (and RMS supplement) or behind an RMS-approved crash barrier.

The proposed digital sign would be installed on the western side of Pacific Highway (approximately 4m away), and Government Road (approximately 8 m away). The monopole supporting the sign is located approximately 6m from the edge of the road of Pacific Highway.

The Austroads Guide to Road Design Part 6 states that a clear zone is the area adjacent to the traffic lane that should be kept free from features that would be potentially hazardous to errant vehicles. The proposed digital sign is located within an urban area where there is kerb and guttering which would redirect an errant vehicle. Therefore, the proposed sign is deemed to be in an acceptable location according to the Austroads Guide to Road Design.

(c) Where a sign is proposed within the clear zone but behind an existing RMS-approved crash barrier, all its structures up to 5.8m in height (relative to the road level) are to comply with any applicable lateral clearances specified by Austroads Guide to Road Design (and RMS supplements) with respect to dynamic deflection and working width.

As stated in (b), the proposed sign and associated support structure would be located in an acceptable location according to the Austroads Guide to Road Design.

(d) All signs that are permitted to hang over roads or footpaths should meet wind loading requirements as specified in AS1170.1 and AS1170.2. All vertical clearances as specified above are regarded as being the height of the sign when under maximum vertical deflection.

As part of the detailed design phase, the digital sign would be designed in accordance with Australian Standards AS1170.2 and AS1170.2 to meet the requirements for wind loading, whilst having consideration for height of the sign boards when under maximum vertical deflection.

3.3.1.2 Line of Sight

(a) An advertisement must not obstruct the drivers view of the road particularly of other vehicles, bicycle riders or pedestrians at crossings.

The proposed digital sign would not obstruct the view of the road for motorists travelling on Pacific Highway and Government Road.

(b) An advertisement must not obstruct a pedestrian or cyclist's view of the road.

The proposed digital sign is not anticipated to obstruct pedestrian or cyclist's view of the surrounding road.

(c) The advertisement should not be located in a position that has the potential to give incorrect information on the alignment of the road. In this context, the location and arrangement of signs' structures should not give visual clues to the driver suggesting that the road alignment is different to the actual alignment. An accurate photo-montage should be used to assess this issue.

The sign would be located outside the carriageway boundary. There would be clear definition between the proposed digital sign and the surrounding road network which would not provide misleading information on the roadway alignment.

(d) The advertisement should not distract a driver's attention away from the road environment for an extended length of time. For example:

- i. **The sign should not be located in such a way that the driver's head is required to turn away from the road and the components of the traffic stream in order to view its display and/or message. All drivers should still be able to see the road when viewing the sign, as well as the main components of the traffic stream in peripheral view.**
- ii. **The sign should be oriented in a manner that does not create headlight reflection in the driver's line of sight. As a guideline, angling a sign five degrees away from right angles to the driver's line of sight can minimise headline reflections. On a curved road alignment, this should be checked for the distance measured back from the sign that a car would travel in 2.5 seconds at the design speed.**

The proposed digital sign would be located within a driver's peripheral vision whilst travelling northbound on Pacific Highway. Motorists would not be required to turn their heads when spotting the sign, and all motorists would be able to see the road simultaneously when viewing the sign.

Motorists turning left from Government Road into Pacific Highway, would face the opposite direction (look south) in order to find a suitable gap in oncoming northbound traffic on Pacific Highway. Therefore, the proposed sign would not divert drivers' attention on the Government Road approach to Pacific Highway.

The positioning and angle of the sign would not be expected to result in headlight reflection or glare.

3.3.1.3 Proximity to Decision Making Points and Conflict Points

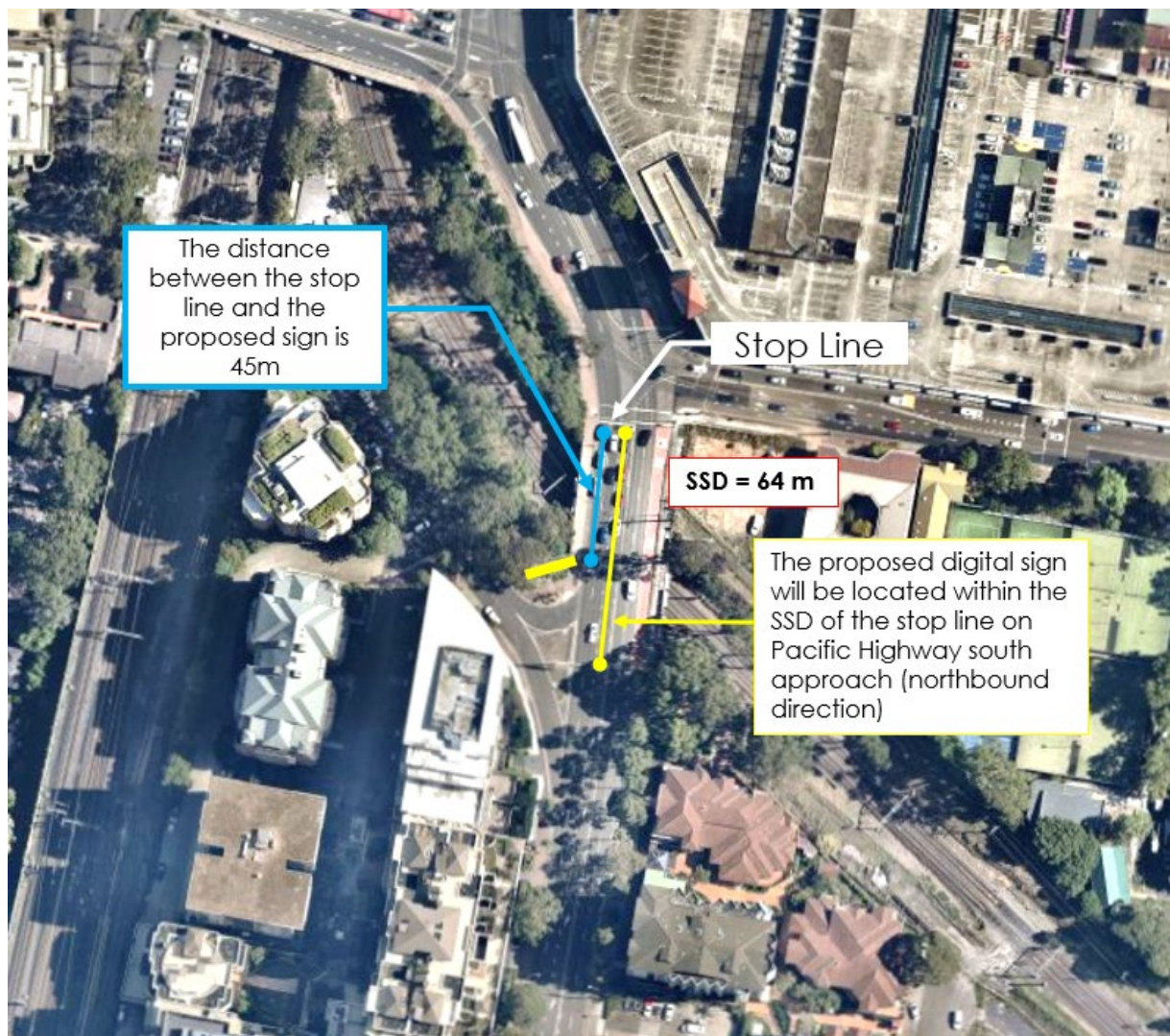
(a) A sign should not be located:

- i. Less than the safe sight distance from an intersection, merge points, exit ramp, traffic control signal or sharp curves.**
- ii. Less than the safe stopping sight distance from a marked foot crossing, pedestrian crossing, pedestrian refuge, cycle crossing, cycleway facility or hazard within the road environment.**

As referenced in the Guide to Road Design, Part 3, sight distance refers to the distance required to enable a driver to react and stop before reaching a hazard. This distance is dependent on the operating (85th percentile) speed of the road, road gradient and other road characteristics.

An operating speed of 60 km/h has been used to calculate the safe stopping sight distance (SSD) which is the signposted speed limit on Pacific Highway. Also, it is the speed which motorists were observed to be driving during the site inspection. According to the Austroads guide, the minimum safe stopping sight distance for a 60km/h speed zone is 64 m. In this instance, the nearest signalised intersection at Edgeworth David Avenue is approximately 45 m north of the proposed sign, falling short by approximately 20 m than the required SSD guidelines.

Figure 3-2: Minimum Safe Stopping Sight Distance



Notwithstanding the above, there are several examples of digital and static sign boards in Sydney that are situated within the minimum safe stopping distance of traffic signals.

A digital sign is located on the north side of a pedestrian bridge above King Georges Road in Beverley Hills, as shown in Figure 3-3. The digital sign is located 55 m north of the King Georges Road - Shorter Avenue signalised intersection. Given that King Georges Road has a speed limit of 60 km/h, the minimum SSD is 64m as per the Austroads Guide Part 3. The Traffic Control Signal plan for the intersection indicates that there is a downhill slope of 6.1% on the approach to the digital sign (King Georges Road north approach). Applying a grade correction of an additional 8 m to the SSD, the minimum SSD is 72 m. As such, the digital sign is located within the minimum SSD as shown in Figure 3-4.

Figure 3-3: Existing Digital Sign on King George Road, Beverley Hills



Source: Google Streetview, imagery dated October 2020

Figure 3-4: Safe Stopping Sight Distance on King Georges Road



Similarly, a digital sign has recently been installed on the south side of the pedestrian footbridge across Pacific Highway in Gordon. The digital sign is located approximately 40 m south of the Pacific Highway - Dumaresq Street signalised intersection as shown in Figure 3-5. Pacific Highway has a posted speed limit of 60 km/h, and therefore, the minimum stopping sight distance to the traffic signals on Pacific Highway south approach is 64 m. Hence, the digital sign is located within the minimum stopping sight distance as shown in Figure 3-6.

For the digital sign in Gordon, there was a Land and Environment Court proceeding (*Captive Vision Pty Ltd v Ku-ring-gai Council (No 3)* [2019] NSWLEC 1472) on 19-20 September 2019. An extract from the court transcripts where TfNSW's expert witness, Ms Samsa, was in support of the proposed digital sign is provided below:

- *EXPERT WITNESS SAMSA: Well it was more that there is - when I analysed the crash data, on both approaches there were obviously crashes for both approaches, but on the southbound approach there were more crashes in the approach to the pedestrian bridge than beyond it, whereas the opposite is for the northbound approach. So there's not a lot of crashes towards it, but after you pass the pedestrian bridge there's been crashes, a larger portion of crashes beyond it. So to me that suggests that there's something about that, that northern section around Dumaresq Street and beyond that is causing drivers issues, and I can't qualify what that is. It could be a number of factors, but to me that was just a bit of a, a point to go well I wonder what's happening here that's making it difficult for drivers to negotiate that particular section of road in particular that would be causing those crashes?*
- *SENIOR COMMISSIONER: Do I understand your evidence is that you support the north or you don't?*
- *EXPERT WITNESS SAMSA: I would support the north approach.*
- *SENIOR COMMISSIONER: Irrespective of that conundrum about not understanding the after the sign area, is that right?*
- *EXPERT WITNESS SAMSA: I think, I think there's less of a chance for drivers to be distracted or to be thinking of a sign beyond once they've passed it.*
- *SENIOR COMMISSIONER: Okay, thank you.*
- *ASTILL: Just to clarify, you said north approach, you mean northbound commissioner?*
- *SENIOR COMMISSIONER: Yes, northbound.*

Figure 3-5: Existing Digital Sign on Pacific Highway, Gordon



Source: Photograph taken by TPP on 24/05/2021

Figure 3-6: Safe Stopping Sight Distance on Pacific Highway, Gordon



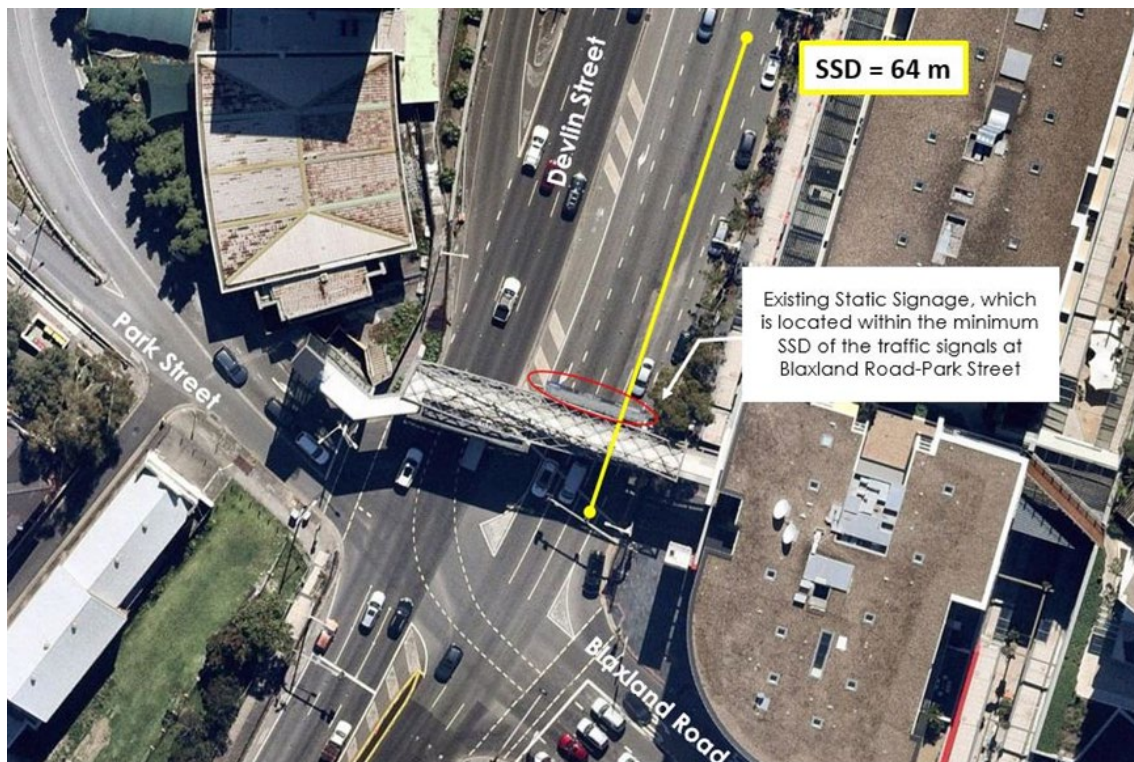
Another example is an existing static sign located on the pedestrian bridge above Devlin Street in Ryde. The existing sign is located 14 m north of the stop line at the Devlin Street - Parkes Street - Blaxland Road signalised intersection as shown in Figure 3-7. In the vicinity of the sign, Devlin Street is posted as 60 km/h giving a minimum SSD of 64 m. As such, the sign is located within the minimum SSD to the traffic signals as shown in Figure 3-8.

Figure 3-7: Existing Sign on Devlin Street, Ryde



Source: Google Streetview, imagery dated November 2020

Figure 3-8: Safe Stopping Sight distance on Devlin Street



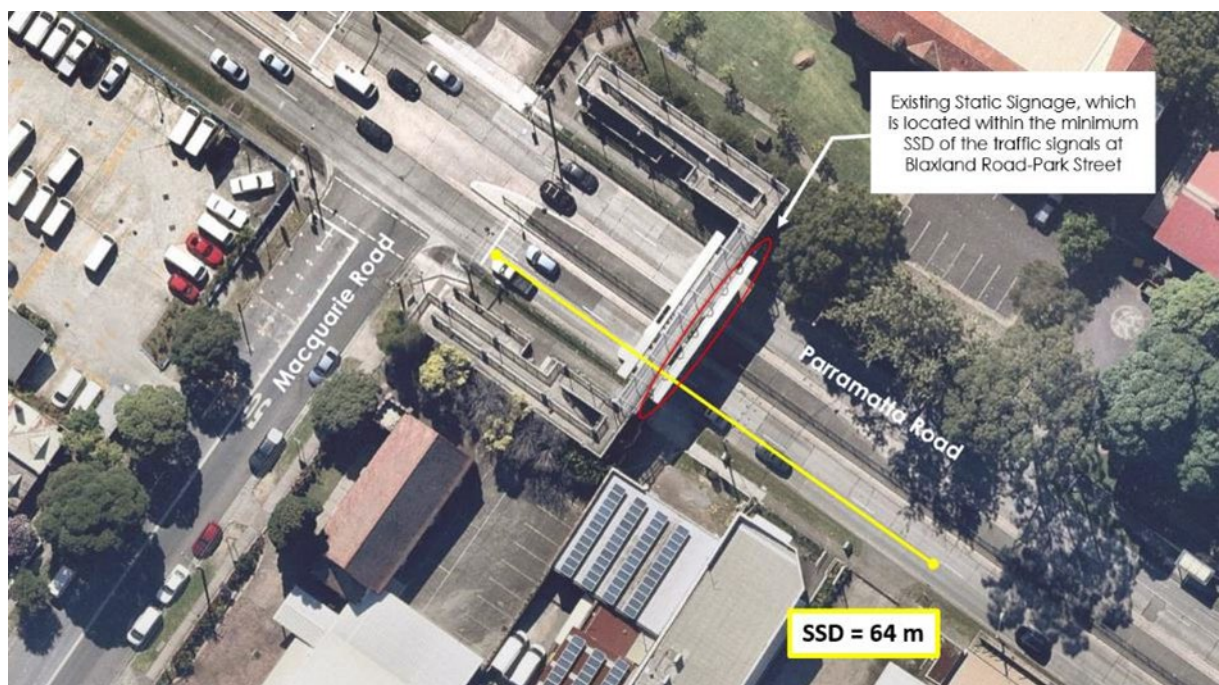
A fourth example is the static billboard fixed to the side of the overhead pedestrian bridge on Parramatta Road in Auburn. On the east approach to the Parramatta Road -

Macquarie Road signalised intersection, there is a sign board located within 25 m of the traffic signals. The driving view on approach to the traffic signals and sign is shown in Figure 3-9. The posted speed limit on Parramatta Road is 60 km/h which gives a minimum SSD of 64m. Thus, the existing billboard is located less than the minimum SSD to the traffic signals, as shown in Figure 3-10.

Figure 3-9: Existing Sign on Parramatta Road, Auburn



Figure 3-10: Safe Stopping Sight Distance on Parramatta Road



Based on the above, there are several instances where there are existing digital and static signs located less than the minimum safe stopping sight distance to traffic signals. Technically speaking, the above examples are also non-compliant with the Transport Corridor Outdoor

Guidelines. However, these signs do not and would not be expected to cause an unsafe level of distraction for motorists on approach to the respective traffic signals.

As detailed in Section 2.4, there has only been one crash in the northbound direction on approach to the proposed digital sign during the most recent 5-year period. Therefore, the existing large static sign has not resulted in reduced safety for motorists travelling northbound on Pacific Highway.

As such, for road safety assessments of digital signs, the Signage Guidelines should be applied as general principles rather than standards or warrants.

iii. So that it is visible from the stem of a T-intersection.

The proposed sign is located adjacent to the Government Road to Pacific Highway intersection left turn slip lane. Government Road traffic gives way to northbound traffic on Pacific Highway. Motorists turning left from Government Road on to Pacific Highway look south to find a suitable gap in oncoming traffic. As such, the proposed sign would not divert motorists' attention as Government Road motorists would look towards the south and not towards the proposed digital sign (north).

The proposed digital sign would not be visible from Edgeworth David Avenue.

As documented in Section 2.4 under crash analysis, there has only been one crash in the northbound direction on approach to the proposed digital sign during the most recent 5-year duration. This infers the existing large static sign has not resulted in reduced safety for motorists travelling northbound on Pacific Highway or entering / exiting Government Road.

(b) The placement of a sign should not distract a driver at a critical time. In particular, signs should not obstruct a driver's view:

- i. Of a road hazard,**
- ii. To an intersection,**
- iii. To a prescribed traffic control device (such as traffic signals, stop or give way signs or warning signs).**
- iv. To an emergency vehicle access point or Type 2 driveways (wider than 6-9 metres) or higher.**

A "critical time" is understood to refer to a point in time when a driver's decision is required implying that a road safety implication could occur if a driver was distracted at this time. The proposed digital sign would be positioned to the side of the carriageway without obstructing a driver's view of any potential hazards on the roadway.

3.3.1.4 Sign Spacing

(a) Sign spacing should limit drivers view to a single view to a single sign at any given time with a distance of no less than 150m between signs in any one corridor. Exemptions for

low speed, high pedestrian zones or CBD zones will be assessed by RMS as part of their concurrence role.

There is no digital advertising sign located within 150m of the proposed digital sign.

Several small advertising signs and billboards are located on both sides of the Pacific Highway bridge located immediately after the proposed digital sign. In addition, advertising signage is visible on the Westfield Shopping Centre building façade, as shown in Figure 3-11. Notwithstanding this, this is a common scenario along the Pacific Highway and in urban environments where numerous signs are displayed in close proximity to intersections.

Figure 3-11: Sign Spacing within Vicinity of Proposed Sign



The road alignment within the vicinity of the proposed digital sign is relatively straight, with clear visibility to the signal controls and traffic conditions along Pacific Highway.

3.3.2 Sign Design and Operation Criteria

3.3.2.1 Advertising Signage and Traffic Control Devices

- (a) The advertisement must not distract a driver from, obstruct or reduce the visibility and effectiveness of directional signs, traffic signals, prescribed traffic control devices, regulatory signs or advisory signs or obscure information about the road alignment.**
- (b) The advertisement must not interfere with stopping sight distance for the road's design speed or the effectiveness of a traffic control device. For example:**
 - i. Could the advertisement be construed as giving instructions to traffic such as 'Stop', 'Halt' or 'Give Way'?**
 - ii. Does the advertisement imitate a prescribed traffic control device?**

iii. If the sign is in the vicinity of traffic lights, does the advertisement use red, amber or green circles, octagons, crosses or triangles or shapes or patterns that may result in the advertisement being mistaken for a traffic signal?

An advance directional and information sign is provided on an overhead gantry structure on the Government Road splitter island. The advance directional and information sign faces northbound traffic and does not overlap the existing static sign, as shown in Figure 3-12. As the existing static sign is located beyond the directional and information sign and at a lower level, motorists would likely have full visibility of the directional and information signage prior to observing the existing static sign.

The advance directional and information sign is readable at approximately 100 m in Lane 1 (kerbside lane), whilst the existing static sign is only readable at approximately 80m due to trees and building awning restricting visibility. Similarly, the advance directional and information sign is readable at approximately 110 m in lane 2, whilst the static sign is not readable until 25m later approaching the sign.

Figure 3-12 illustrates the readable distance of the advance directional and information sign prior to the existing static sign in the northbound direction along Pacific Highway.

Figure 3-12: Readable Distance of Advance Directional and Information Sign (Lane 1)



Details of the advertisement/s are not yet known since the project is still within the early design stage. However, it is noted that the sign would not display colours and shapes which could be mistaken for traffic signals.

Notwithstanding this, it is recommended that the content of the proposed sign be reviewed against Table 5 of the Guidelines to avoid any content that may be construed as imitating a traffic control device.

3.3.2.2 Dwell Time and Transition Time

- (a) Each advertisement must be displayed in a completely static manner, without any motion, for the approved dwell time as per criterion (b) below**
- (b) Dwell times for the image display must not be less than:**
 - i. 10 seconds for areas where the speed limit is below 80km/hr.**
 - ii. 25 seconds for areas where the speed limit is 80km/h and over.**
- (c) Any digital sign that is within 250 metres of a classified road and is visible from a school zone must be switched to a fixed display during school zone hours.**
- (d) Digital signs must not contain animated or video/movie style advertising or messages of image failure, the default image must be a black screen.**
- (e) The transition time between messages must be no longer than 0.1 seconds, as in the event of image failure, the default image must be a black screen.**

The digital sign is proposed to contain text and images. Based on the Guidelines with a speed limit below 80km/h, the minimum dwell time for content displayed on the proposed digital sign would be 10 seconds. However, it is recommended to increase the dwell time up to 15 seconds for the digital sign given that it is in close proximity to traffic signals.

In the northbound direction of Pacific Highway, an "End School Zone" sign was observed 220m prior to the proposed sign, which is located beyond the visible and readable distance of the proposed digital sign.

3.3.2.3 Illumination and Reflectance

- (a) Luminance levels comply with the requirements in Table 6 in Transport Corridor Outdoor Advertising and Signage Guidelines.**
- (b) The image displayed on the sign must not otherwise unreasonably dazzle or distract drivers without limitation to their colouring or contain flickering or flashing content.**

Section 3.3.3 of the Guidelines details assessment criteria to ensure that illumination and reflectance qualities of the sign do not cause a road safety hazard. It is understood that these criteria would be addressed in a separate specialist report prepared by a qualified consultant.

3.3.2.4 Interaction and Sequencing

- (a) The advertisement must not incorporate technology which interacts with in-vehicle electronic devices or mobile devices. This includes interactive technology or technology that enables opt-in direction communication with road users.**

(b) Message sequencing designed to make a driver anticipated the next message is prohibited across images presented on a single sign and across a series of signs.

The proposed sign would not contain interactive technology or technology that enables opt-in direction communication with motorists. The digital sign would not be designed to make motorists anticipate information.

4 Conclusion

JCDecaux is proposing to remove an existing large format static sign and install a small digital sign on the northwestern corner of the Pacific Highway and Government Road intersection.

The proposal has been assessed against the statutory requirements for digital advertising signage outlined in the following:

- Section 3, Advertisements and Road Safety of the NSW Guidelines
- State Environmental Planning Policy (Industry and Employment)

The following findings and conclusions are made from the signage safety assessment:

- The proposed digital sign would not obstruct and/or reduce visibility of any traffic control devices, signage, road alignment or cyclists.
- The proposed sign would not give incorrect information on the alignment of the road.
- The sign would be located within a driver's peripheral vision for motorists travelling in the northbound direction of Pacific Highway, and does not require motorists to turn their head away from the roadway ahead.
- Motorists turning left from Government Road into Pacific Highway would look south to find gaps in oncoming northbound traffic on Pacific Highway. Therefore, motorists turning left from Government Road into Pacific Highway are not distracted by the existing static sign nor the proposed digital sign.
- The proposed digital sign is located within the safe stopping distance to the traffic signals at the Pacific Highway and Edgeworth David Avenue intersection. However, between the proposed digital sign and the traffic signals is straight and comprises good visibility to the traffic signal lanterns. Further, this is not an uncommon scenario as there are multiple digital and static signs located within the safe stopping distance of traffic signals as presented in Section 3.3.1.3.
- Within the vicinity of the proposed digital sign, there is advertising signage provided along both sides of Pacific Highway bridge, as well as billboard advertising signage on the Westfield Shopping Centre's building facade. The signage has not resulted in any known safety issues, evidenced by only one minor incident recorded within the most recent 5-year duration.
- An advance directional and information sign is located on an overhead gantry structure prior to the existing static and proposed digital sign. Visibility of the advance directional and information sign does not overlap with the visibility of the existing static sign, hence would not overlap with the proposed digital sign.
- Pacific Highway has a posted speed limit of 60 km/h past the proposed digital sign. As such, a dwell time of 10 seconds is required in accordance with the Guidelines. However, increasing the minimum dwell time from 10 seconds to 15 seconds is proposed given the proposed digital sign is in close proximity to traffic signals.

- The safety at the two left turn slip lanes at Government Road is not anticipated to be further impacted by the proposed digital sign, as there is no evidence of any crash incidents in the past 5-year duration.

Having consideration for the signage safety assessment and discussions presented within this report, the analysis suggests that the installation of a digital sign facing northbound traffic along Pacific Highway near Government Road would be acceptable based on the minimal crash rate within the vicinity of the existing static sign and proposed digital sign.

Appendix A

State Environmental Planning Policy (Industry and Employment) – Schedule 5

State Environmental Planning Policy (Industry and Employment) 2021

Current version for 1 March 2022 to date (accessed 22 March 2022 at 15:07)

Schedule 5

Schedule 5 Assessment criteria

sections 3.6, 3.11 and 3.15

1 Character of the area

- Is the proposal compatible with the existing or desired future character of the area or locality in which it is proposed to be located?
- Is the proposal consistent with a particular theme for outdoor advertising in the area or locality?

2 Special areas

- Does the proposal detract from the amenity or visual quality of any environmentally sensitive areas, heritage areas, natural or other conservation areas, open space areas, waterways, rural landscapes or residential areas?

3 Views and vistas

- Does the proposal obscure or compromise important views?
- Does the proposal dominate the skyline and reduce the quality of vistas?
- Does the proposal respect the viewing rights of other advertisers?

4 Streetscape, setting or landscape

- Is the scale, proportion and form of the proposal appropriate for the streetscape, setting or landscape?
- Does the proposal contribute to the visual interest of the streetscape, setting or landscape?
- Does the proposal reduce clutter by rationalising and simplifying existing advertising?
- Does the proposal screen unsightliness?
- Does the proposal protrude above buildings, structures or tree canopies in the area or locality?
- Does the proposal require ongoing vegetation management?

5 Site and building

- Is the proposal compatible with the scale, proportion and other characteristics of the site or building, or both, on which the proposed signage is to be located?
- Does the proposal respect important features of the site or building, or both?
- Does the proposal show innovation and imagination in its relationship to the site or building, or both?

6 Associated devices and logos with advertisements and advertising structures

- Have any safety devices, platforms, lighting devices or logos been designed as an integral part of the signage or structure on which it is to be displayed?

7 Illumination

- Would illumination result in unacceptable glare?
- Would illumination affect safety for pedestrians, vehicles or aircraft?
- Would illumination detract from the amenity of any residence or other form of accommodation?
- Can the intensity of the illumination be adjusted, if necessary?
- Is the illumination subject to a curfew?

8 Safety

- Would the proposal reduce the safety for any public road?
- Would the proposal reduce the safety for pedestrians or bicyclists?
- Would the proposal reduce the safety for pedestrians, particularly children, by obscuring sightlines from public areas?

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