KEYLAN
43A The Corso
Manly NSW 2095

16 April 2024

Mary Garland
Team Leader, Transport and Water Assessments
NSW Department of Planning and Environment
Locked Bag 5022
Parramatta NSW 2124

Dear Mary,

Response to Request for Information (DA23/15294)
Digital Advertising Sign – Pacific Highway, Hornsby

This letter has been prepared by *Keylan Consulting Pty Ltd* (Keylan) on behalf of Sydney Trains (the Applicant) to address the Department of Planning, Housing and Infrastructure (DPHI) Request for Additional Information (RFI) dated 12 March 2024 in relation to Development Application (DA23/15294).

This response should be read in conjunction with the following attachments:

- **Attachment A**: Response to issues raised by DPHI
- **Attachment B**: TTPP response to DPHI traffic and road safety issues
- **Attachment C**: Electrolight consultant advice letter
- **Attachment D**: Utilities Services Plan
- **Attachment E**: Buried Services Plan
- **Attachment F**: TfNSW Concurrence

The matters raised by DPHI within this RFI primary relate to traffic issues. It is important to highlight that TfNSW have provided concurrence, which is provided in Attachment F. In addition, TTPP as an expert traffic consultant have provided a thorough assessment of the proposal both within the Signage Safety Assessment submitted with the original DA and in their Response to DPHI traffic and road safety issues provided at Attachment B, which concludes:

- *the proposed digital sign is considered acceptable from a road safety perspective*
- *many of DPHI's requests are considered arduous and, in some cases, subjective, especially when considering the requirements set out by the relevant guidelines and policies have been met to a satisfactory level studies undertaken in Australia indicate that there is no indication that digital signs contribute to driver distraction resulting in incidents when compared to static signage*
- *the sign satisfies the policies and guidelines as stipulated by the relevant government agencies, the replacement of the existing static sign with a smaller digital sign is not considered to negatively impact road safety along Pacific Highway or Government Road.*

We trust that this response provides sufficient information required for DPHI to finalise its assessment and approve the application.

Please do not hesitate to contact Danielle Wigg via email danielle@keylan.com.au should you wish to discuss any aspect of this project.

Yours sincerely

Michael Woodland BTP MPIA
Director

Attachments:

Attachment A: Response to Issues raised by DPHI
Attachment B: TTPP response to DPHI
Attachment C: Electrolight consultant advice letter
Attachment D: Utilities Services Plan
Attachment E: Buried Services Plan
Attachment F: TfNSW Concurrence

Attachment A

Response to issues raised by DPHI dated 12 March 2024

Ref.	Issues raised	Response
1	***Sight Stopping Distance***	
1.1	*The Digital Sign Safety Assessment only identified one hazard source as requiring a stop -the red signal from the signalised traffic intersection. There are other hazards associated with hazardous stops for road users, such as back-of-queue due to traffic conditions, vehicles turning left into Government Road or stopping to wait for pedestrians to cross Government Road. Please detail all potential hazards and the implications in terms of the safe sight stopping distance(s).*	TTPP have prepared a detailed response addressing this matter raised by DPHI (Attachment B). TTPP emphasise that the proposed digital sign will be fully compliant with the safe sight stopping (SSD) distance requirements outlined within section 3.2.3 of the Transport Corridor Outdoor Advertising and Signage Guidelines and Austroads Guide to Road Design Part 3 as it is located beyond the Government Road and Pacific Highway intersection. Notwithstanding, TTPP have analysed the potential hazards detailed within DPHI's RFI. A summary of each hazard is provided below: • **back-of-queues:** There is adequate sight distance along Pacific Highway as the road has a straight alignment to potential stopping hazards such as back-of-queues. Due to the high volume of traffic and signalised intersection, drivers will be on high alert and have an elevated expectancy of stopping. • **vehicles turning left into Government Road or stopping to wait for pedestrians to cross Government Road**: As shown within the figure below, motorists turning left into Government Road from Pacific Highway have clear visibility on approach and towards pedestrians waiting to cross the road due to the low angle of the left turn lane on approach. There have also been no incidents at this crossing location in the last 5 years so there is no discernible inherent crash risk at this location, noting that there is also an existing static sign at the corner of Government Road and Pacific Highway.

Ref.	Issues raised	Response
		 Figure 1: approach onto Government Road (Source: TTPP) In light of the above, TTPP is of the view that: • *there is adequate safe stopping sight distance and visibility on approach to potential stopping hazards* • *there is no concerning safety issues and the proposed digital sign will be smaller compared to the existing static sign and therefore, the proposal could not be expected to worsen the road safety compared to the existing situation. This is further demonstrated by the fact that there has only been one incident within the visible distance of the existing static sign across the last five years* • *there are no other concerning hazards at this location*

Ref.	Issues raised	Response
1.2	*The Digital Sign Safety Assessment uses a driver reaction time of 1.5 seconds. Two seconds should be used for sight stopping distance calculations as per Footnote 4, Table 5.5, of the Australian Road Guidelines Part 3. Please provide justification as to why a reaction time of 1.5 seconds is considered suitable. Further, calculate the sight stopping distance using a driver reaction time of two seconds.*	TTPP have prepared a detailed response addressing this matter (Attachment B). An extract of TTPP's response is below. In summary, 1.5 seconds is justified as being the most appropriate reaction time for the SSD assessment based on the criteria within Table 5.2 of the Austroads Guide to Road Design Part. Given this, calculating the SSD using a driver reaction time of 2 seconds is considered unnecessary and irrelevant as it would be inconsistent with TTPP's advice and Austroads Guide to Road Design Part 3. *Table 5.2 of the Austroads Guide to Road Design Part 3 provides the typical road conditions and driver reaction times. A reaction time of 2.0 seconds is used for road conditions in "higher speed urban areas" and with "few intersections". A 1.5 second reaction time is used in alert driving conditions where there is a "High expectancy of stopping due to traffic signals" and "built up areas – high traffic volumes".* *A 7-day automatic tube count was carried out along Pacific Highway in proximity to the site and measured a daily average of 11,615 vehicles in the northbound direction. This data is provided in Attachment Four. In addition, the proposed site is in close proximity to Westfield Hornsby (within 100 metres) and therefore, the section of road analysed would be considered within a built-up area with high traffic volumes.* *Furthermore, TTPP notes that Pacific Highway, Hornsby comprises the following road and geometric elements that pertain to alert driving conditions:* • *High expectancy of stopping due to traffic signals* • *Built-up area – high traffic volumes* • *Built-up area with direct accesses and intersections.* *Moreover, Pacific Highway features frequent signalised intersections, including one in the vicinity to the proposed digital sign, which would contribute to drivers having an elevated expectancy of stopping and thereby, a lower reaction time.* *Therefore, based on the criteria of Table 5.2 in the Austroads Guide to Road Design Part 3, a reaction time of 1.5 seconds is considered more suitable for the safe stopping sight distance assessment.*

Ref.	Issues raised	Response
1.3	*It is understood that a conservative design speed of 10 km/h above the posted legal speed limit is typically used to calculate the safe sight stopping distance. Please justify why a design speed of 60 km/h was used for this assessment. Also, please provide a calculation of the stopping distance using a design speed of 70 km/h.*	TTPP have prepared a detailed response addressing this matter (Attachment B). An extract of TTPP's response is below. In summary 50 km/h is the most appropriate design speed to use for the assessment as: • Section 5.7 of the Transport for NSW's Technical Direction (TD 00030:2023) states *'for streets and roads signposted at 60 km/h the design speed should match the context and movement function of the street'.* • Pacific Highway at this location is within a 60km/h speed zone, and therefore the design speed should match the context and movement function of the street in accordance with the Technical Direction. • As Pacific Highway is a road that is built and currently in use, the operating speed of the road can be used instead of the design speed. The 85th percentile speed limit is the operating speed of the road and is a more accurate alternative to estimating a design speed. • A 7-day automatic tube count was carried out along Pacific Highway in proximity to the site and measured an 85th percentile speed of 50km/h (rounded up from 49.5km/h). Given the above, calculating the SSD using a design speed of 70 km/h is considered unnecessary and irrelevant as it would be inconsistent with TTPP's advice and Austroads Guide to Road Design Part 3. *Transport for NSW's (TfNSW) Technical Direction – TD 00030:2023 provides clarification to the speed zone review process and types of speed zones as part of TS 03631:1.0 NSW Speed Zoning Standard.* *Section 5.7 of the technical direction states:* *"Design speed should match the posted speed for streets signposted at 50 km/h and below. In the absence of any other evidence, the design speed is 10 km/h above the posted speed on main roads signposted at 70 km/h and above as stated in Austroads Guide to Road Design Part 3 Section 3.3 Operating Speeds on Urban Roads.* ***For streets and roads signposted at 60 km/h the design speed should match the context and movement function of the street****."* *Pacific Highway at this location is within a 60km/h speed zone, and therefore, the design speed should match the context and movement function of the street. Alternatively, the operating speed of the road can be used instead of the design speed if the road has been built and is in use. The 85th percentile speed*

Ref.	Issues raised	Response
		limit is used as the operating speed of the road and is a more accurate alternative to estimating a design speed. *A 7-day automatic tube count was carried out along Pacific Highway in proximity to the site and measured an 85th percentile speed of 50km/h (rounded up from 49.5km/h). The data pertaining to speeds along Pacific highway is available in Attachment Three. Therefore, 50 km/h is the more appropriate design speed to use at this location, which is significantly less than the suggested use of 70km/h.* *Based on the Austroads Guide to Road Design Part 3, the stopping sight distance (SSD) requirement for a 50km/h design speed, a 1.5s reaction time and a flat gradient is 48m. The sign would be situated 45m from the stop line as assessed in the SSA report. However, given that the sign would be situated to the left of the roadway it would not be readable when in close proximity to the sign due to it being out of a driver's field of view, as shown in Figure 2. This picture shows the edge of the existing static sign; however the proposed digital sign will be setback 1m further from the footpath. This image is taken a distance of 5m from the sign, which would be a distance of 50m from the stop line. Therefore, the sign would not be readable within the 48m SSD required from the stop line as shown in Figure 3.*  Figure 2: Minimum visible distance (Source: TTPP)

Ref.	Issues raised	Response
		 Figure 3: Safe stopping Sight distance (Source: TTPP)
2	***Clear Zone Safety***	
2.1	*The assessment indicates that the edge of the display sign is likely to be offset four metres from the edge of the traffic lanes. The monopole would be offset around six metres. The Austroads Guide to Road Design outlines that a clear zone should be a minimum of five metres at a design speed of 60 km/h. It is understood that it is common practice in road design to adopt a higher speed, typically 10 km/hr above*	As stated above, 50km/h has been established as the most accurate speed design based on traffic surveys undertaken in the vicinity of the sign.

<table>
<tr><th>Ref.</th><th>Issues raised</th><th>Response</th></tr>
<tr><td></td><td>posted speed limit when calculating the clear zone.</td><td></td></tr>
<tr><td>2.2</td><td>Please justify why a design speed of 70 km/h was not used for the clear zone analysis. Further, please justify why a clear zone offset of less than five metres is acceptable, outlining the associated risks and implications for traffic incidents where a vehicle may run off the road.</td><td>As outlined within the TTPP response (Attachment B and extract below), the requirement of a 5m clear zone within a 70km/h speed zone has been superseded. The current Austroads Guide to Road Design Part 6 does not include a requirement to provide a 5m clear zone width.

A clear zone offset requirement of five metres in a 70km/hr speed environment is from an outdated Austroads guide which has since been superseded. It is noted that the most recent revision of the Austroads Guide to Road Design Part 6 does not provide guidelines for clear zone requirements. In fact, it now concludes the following:

“Clear zones should now be considered in the following light:
Clear zones cannot deliver Safe System outcomes in isolation and should be regarded as a supporting treatment.
Some clear zone is better than none at all when continuous lengths of barrier cannot be installed.
Clear zones should be regarded as having the potential to be a hazard in their own right in the same way that barriers are afforded this attention.”
Therefore, there is no requirement to provide a 5m clear zone width based on the most up-to-date road design guidelines available in Australia.

It is also noted that the proposed digital sign will retain the same clearance from the road as the existing sign and will not worsen the existing road safety environment. It will also continue to be located behind an existing brick retaining wall.</td></tr>
<tr><td>3</td><td colspan="2">Distraction Risk</td></tr>
<tr><td>3.1</td><td>The Digital Sign Safety Assessment does not address all of the potential distraction risks associated with the sign on road users (motorists, pedestrians and cyclists). Please assess the risk of distraction posed by the sign on:
motorists and cyclists turning from Government Road onto the Pacific Highway. The assessment fails to</td><td>As outlined within the Attachment B, TTPP undertook a site inspection and have prepared an assessment of each potential distractions identified by DPHI. A summary of each assessment is provided within the table below.

<table><tr><th>Potential distraction</th><th>TTPP response</th></tr><tr><td>Motorists and cyclists turning from Government Road onto the Pacific Highway.</td><td>It was observed by TTPP that drivers were focussed on oncoming traffic when turning into Pacific Highway from Government Road. When pulling out drivers were looking out the front window for traffic within the traffic</td></tr></table></td></tr>
</table>

Ref.	Issues raised	Response	
	acknowledge that the sign would be visible to drivers exiting from Government Road and that they would need to look left before pulling out to make sure that the traffic lane is clear and that there are no stopped vehicles preventing them from turning onto the highway; • *motorists and cyclists turning left into Government Road from the Pacific Highway; and* • *pedestrians heading north along the highway and crossing over Government Road.* *The assessment should be based on the worst-case scenario that the sign will be highly distracting.*		*lane. The proposed digital sign would be located at a 90-degree angle from a stopped vehicle and would only be observable by looking left through the side window. This would be in the opposite direction drivers and cyclists are focussed on as shown in Figure 4.* (Figure 4 below). *Therefore, TTPP deems that it would be highly unusual for drivers exiting Government Road to be looking out the left side window to observe the sign and is therefore not considered a safety risk. This would be the case for cyclists as well, which were not observed along Pacific Highway during our site inspection*
		Motorists and cyclists turning left into Government Road from the Pacific Highway.	*A driver and cyclist will be able to turn left into Government Road from Pacific Highway with clear vision towards pedestrians crossing because of the angle of approach as shown in Figure 1* (Figure 5 below).
		Pedestrians heading north along the highway and crossing over Government Road.	*There is clear visibility towards pedestrians waiting to cross, or travelling north on Government Road due to the low angle of the left turn lane on approach. There have also been no incidents at this crossing location in the last 5 years so there is no discernible inherent crash risk at this location, even with the existing large format static sign.* *Furthermore, pedestrians travelling north along Pacific Highway have sufficient time to process signs and messages and therefore, are unlikely to be distracted by the proposed digital sign when crossing. Similar to drivers and cyclists, pedestrians would be looking towards oncoming traffic from Pacific Highway away from the proposed digital sign to find suitable gaps in traffic before crossing Government Road.*

Ref.	Issues raised	Response
		 Figure 4: Driver exiting Government Road onto Pacific Highway

Figure 5: Approach onto Government Road

Importantly, TTPP reviewed numerous studies (detailed below) which indicate that there is no valid link between roadside advertising and increased crash risk/driver distraction and performance in comparison to static signage. It can therefore be assumed that the sign will not be highly distracting, and drivers will have cognitive ability to register any potential road safety risks along with the sign simultaneously.

- whether digital billboards are distracting to motorists (study undertaken by Carolyn Samsa in November)
- on road driving performance of digital billboards (study undertaken by the Australian Road Research Board (2018))
- relationships between distraction and crashes (literature review prepared by Bitzios)

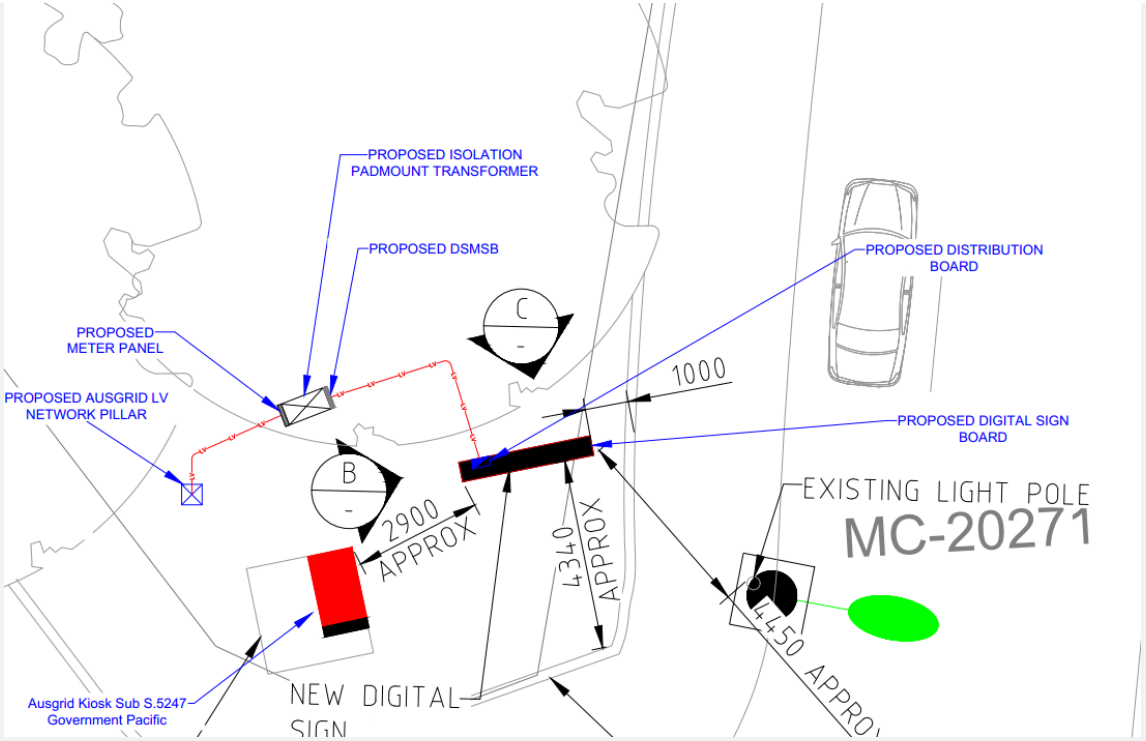
Ref.	Issues raised	Response
3.2	*The Digital Sign Safety Assessment assumes that the proposed sign would be in a driver's peripheral view. It is considered that the sign would be within the lateral scan of the road and verge ahead. Please discuss the distraction risks associated with the sign based on it being within a driver's lateral view.*	As outlined within the TTPP response (Attachment B and extract below), TTPP's view that there are no distraction risks associated with the lateral view of the proposed digital sign compared to the existing environment. *Drivers in built up environments are accustomed to roadside advertising within their peripheral view and are able to process this information alongside the potential risks within the road environment. Further to this, there is no evidence that digital signs contribute more to driver distraction incidents compared to static signage, and therefore it is TTPP's view that there are no distraction risks associated with the lateral view of the proposed digital sign compared to the existing environment.* *In addition, the review of the crash history at this location as presented in the SSA report, provided in Attachment Three, shows that there has only been one incident within the readable or visible distance to the sign which indicates that there is no present road safety risk at this location, even with the existing large format static sign. Nor are there any future road safety risks*
4	***Risks associated with the digital sign outcompeting directional signages***	
4.1	*There is no acknowledgement that from certain points the proposed sign and directional sign would be in the same vertical field of view. As such, the sign could outcompete the directional sign for the driver's attention. Further, the assessment only discusses the visibility and legibility of the directional sign and not the impact that it would have on lane-choice implications and possible multiple manoeuvres as drivers change lanes.* *Please address the impacts that the proposed signage could have on drivers' decision-making elements, such as changing-lanes, which would be made based on the directional signage.*	As outlined within the TTPP response (Attachment B), the digital advertisement sign is not considered to compete with directional signages given: *The sign would not be positioned directly below the directional signage and therefore not within the same vertical field of view as it is offset on the left side of the road, as opposed to the directional sign which is situated above the roadway. This is evident in the signage exposure images in Section 2.3 of the SSA report attached in Attachment Three.* *The directional sign would be visible from 115m away and is situated approximately 20m south of the proposed digital sign. The driving approach from 115m away to the directional sign is presented below in Figure 5. As evident, the proposed digital sign would be obscured by poles and vegetation at this point, and the directional signage would be clearly distinct situated above the roadway. The digital sign would be visible approximately 20m after the directional sign comes into view.* *Drivers requiring directional guidance would primarily be focussed on the directional signage and would have visibility of this sign before the digital sign comes into view. They would be able to make their lane change with adequate time before the traffic signals, so this is not considered a safety risk.* *Furthermore, as discussed above there is no evidence that there is a crash risk at this location even despite the existing static sign (which is larger than the proposed digital sign).*

Ref.	Issues raised	Response
		 Figure 6: Driving approach to directional signage
5	***Inconsistency with the Transport Corridor Outdoor Advertising and Signage Guidelines***	
5.1	*The placement of the sign is inconsistent with Section 3.2.3 of the Transport Corridor Outdoor Advertising and Signage Guidelines (Department of Planning and Environment, 2017) (the 2017 Guidelines). Section 3.2.3 of the 2017 Guidelines states that an advertising sign should not be located where it is visible from the terminating leg of a T-intersection. The sign would be visible from Government Road*	This is addressed in the Distraction Risk section; it is not seen as a safety risk due to the location of the sign.

<table>
<tr><th>Ref.</th><th>Issues raised</th><th>Response</th></tr>
<tr><td></td><td>which is the terminating leg of T-intersection with the Pacific Highway. Please provide justification as to why the non-compliance with the 2017 Guidelines is acceptable.</td><td></td></tr>
<tr><td>6</td><td colspan="2">Assessment against Schedule 5, State Environmental Planning Policy (Industry and Employment) 2021</td></tr>
<tr><td>6.1</td><td>Section 3.1 of the Safety Assessment states that Schedule 5 -clause 7 of State Environmental Planning Policy (Industry and Employment) 2021 is unrelated to road safety. This is not correct as illumination could cause glare for drivers. Please provide a response to the relevant requirements in Schedule 5, clause 7.</td><td>Electrolight has prepared Attachment C which contains a table assessing the proposal directly against the Schedule 5, Clause 7 of the State Environmental Planning Policy (Industry and Employment) 2021. An extract of the table is provided below: In summary, the proposal is fully compliant.
<table>
<tr><th>Assessment criteria</th><th>Response</th><th>Compliant?</th></tr>
<tr><td>Would illumination result in unacceptable glare?</td><td>The proposed signage complies with the Luminance limits of AS4282, demonstrating that the illumination will not cause unacceptable glare.</td><td>✓</td></tr>
<tr><td>Would illumination affect safety for pedestrians, vehicles or aircraft?</td><td>The proposed signage complies with the Threshold Increment limits of AS4282, demonstrating that the illumination will not cause unacceptable glare. The calculation results in the LIA Report show that the Threshold Increment does not exceed 2.50% for any traffic approach (the allowable maximum under the standard is 20%). In addition, the small size of the signage and its relatively low luminance limits the risk to pedestrians, vehicles or aircraft.</td><td>✓</td></tr>
<tr><td>Would illumination detract from the amenity of any residence or other form of accommodation?</td><td>The proposed signage, when installed according to the LIA report, complies with the illuminance (spill lighting) limits of AS4282, demonstrating that the illumination will not detract from the amenity of any residence or other form of accommodation.</td><td>✓</td></tr>
<tr><td>Can the intensity of the illumination be adjusted, if necessary?</td><td>The proposed signage is dimmable and when designed according to this report, includes a light sensor that automatically adjusts the brightness of the advertising display to prevailing light conditions.</td><td>✓</td></tr>
</table></td></tr>
</table>

Ref.	Issues raised	Response
		<table><tr><td>Is the illumination subject to a curfew?</td><td>*The proposed advertising signage, when installed according to this report, complies with the limits required during curfewed operation under AS4282 (nominally between the hours of 11pm and 6am). This means that a curfew is not required.*</td><td>✓</td></tr></table> Further, TTPP's response (Attachment B) concludes illumination of the sign is unlikely to result in any adverse impact on road safety as it shall not contain: • *flashing or flickering lights or content* • *animated displays, moving parts or simulated movement* • *complex displays including text and information that hold a driver's attention beyond "glance appreciation"* • *displays resembling traffic control devices by use of colour, shape or words that can be construed as giving instruction to traffic for example, red, amber or green circles, octagons, crosses, triangles and words such as 'stop' or 'halt'* • *a method of illumination that distracts or dazzles* • *dominant use of colours red or green* The Applicant is prepared to accept a condition of consent requiring compliance with the matters raised within TTPP's response.
7	***Decision-making requirements***	
7.1	*The Digital Sign Safety Assessment only considers the competition between the directional signage and proposed digital signage. Please assess other decision-making requirements such as the competition between the proposed signage vs the closing gap ahead of the road user, the proposed signage vs the traffic signals and the proposed signage vs pedestrian movements.*	As outlined within TTPP's response (Attachment B): *The sign has been assessed against the traffic signals and pedestrian movements using the criteria set out in Clause 3.2.3 of the Transport Corridor Outdoor Advertising and Signage Guidelines and meets these requirements, as discussed above* (see section 3 of Attachment A). *The Guide defines a decision-making point as "areas in which merging, diverging, turning and weaving traffic manoeuvrers take place", and conflict points as "intersections or pedestrian crossings where crash risk is greater". Regarding the closing gap ahead of the road user this is understood as the gap between a motorist and the back of a queue. The potential hazards associated with this alongside with the traffic signals and pedestrian movements have been assessed in the responses above.* (see section 3 of Attachment A).

Ref.	Issues raised	Response
7.2	*The desire lines provided in the Digital Sign Safety Assessment are limited to the area immediately surrounding the sign. The subject area is one of high pedestrian activity and it is considered that the desire lines should have been extended to take into account the key destination points of Hornsby Station and the Westfield Shopping Centre. Walking is the most fluid, unrestricted form of movement around roads and pedestrians often take the shortest route available. Please provide an assessment of the potential risks of wayward pedestrian movements where a pedestrian may be distracted by the sign.*	As outlined within TTPP's response (Attachment B): *There are adequate pedestrian facilities available for pedestrians to cross safely within the vicinity of the sign. Pedestrians are inherently going to cross the road when there are suitable gaps in traffic. It is unlikely that these pedestrians would be distracted by the sign given they would be focused on observing safe gaps in traffic before crossing the road.* *Furthermore, there are designated kerb ramps with "LOOK" pavement marking and tactile ground surface indicators for pedestrians crossing Government Road. These facilities provide further delineation to distinctly guide and warn pedestrians when crossing Government Road.* *Given the high traffic volume on Pacific Highway and that it is six lanes wide, pedestrians will use the signalised intersection to cross Pacific Highway, and it is highly unlikely that another route would be used. This was supported by on-site observations.* *There is also pedestrian fencing along Government Road which prohibits pedestrians from crossing closer to the intersection with Pacific Highway. Therefore the pedestrian desire line is to cross at the provided refuge island on Government Road. This was also supported by onsite observations.* *In summary, it is considered improbable that a pedestrian would be so distracted by the sign that they would walk waywardly out onto the road and therefore this is not regarded as a safety risk*
8	***Other issues***	
8.1	*Details on utility services required to operate the sign have not been included. Please advise whether the services form part of the development or if they will be provided under another approval pathway. If these are to form part of the development application, details must be provided on the services along with an assessment of the construction impacts associated with providing the services.*	Attachment D contains a utilities services plan which demonstrates how the sign will be connected to an Ausgrid Link Pillar, an extract is provided below. There will be minimal construction impacts associated with connecting the sign to electricity as it is predominately just the running of underground conduit from the connection pillar to the sign.

Ref.	Issues raised	Response
		 Figure 7: Utilities services plan
8.2	*No details have been provided on the existing buried services, noting that there is a high pressure gas main in the vicinity of the proposed sign. Please provide details on all existing buried services and the measures that would be implemented to protect these during construction of the proposed sign.*	Attachment E contains a plan which details the existing buried electrical and gas services surrounding the site. As shown, the electrical service (red outline) and gas service (purple outline) are of sufficient distance away from the proposed base of the sign.

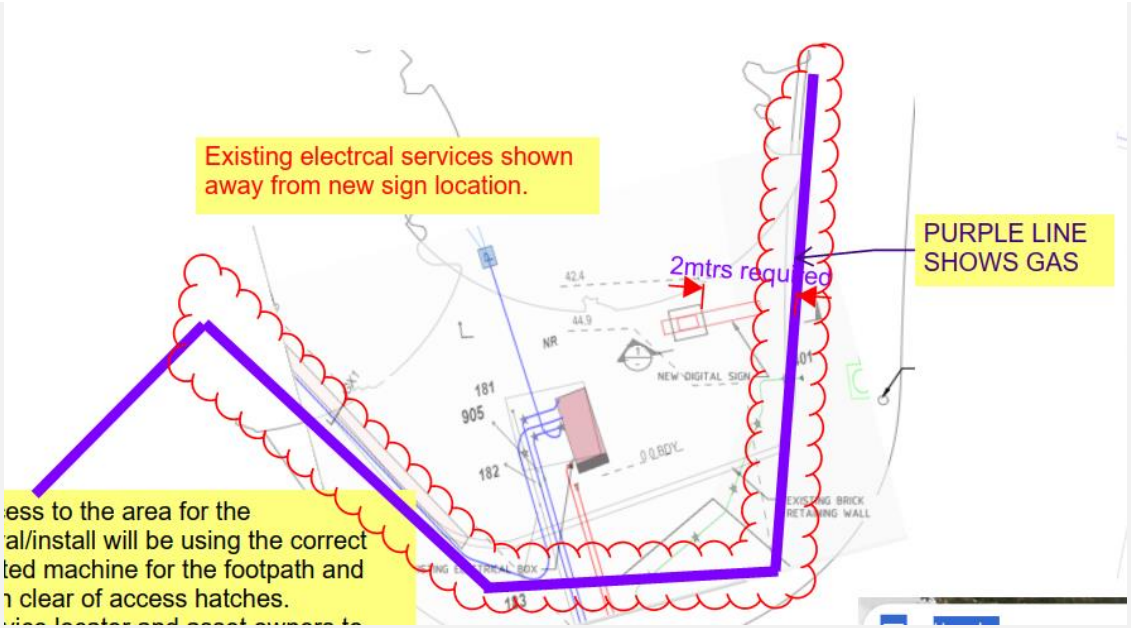


Figure 8: Buried Services Plan (Source: JCDecaux)

To ensure services remain protected during the construction phase the following processes will be adopted:

- The use of a utility mapping service provider to mark the exact location of the services (physical). They can also be present during excavation.
- If required to be present during excavation works the use of second field officers can be available to monitor the excavation if the gas, electrical and other services are within the prescribed distance that requires asset owners observation to be present during works that could impact assets.
- Load spreading plates and protective matting to be used as minimum.
- The use of cranage to lift machinery into and out of the site to avoid weight restrictions of the footpath and services within.
- Use equipment that is approved to work on footpath and is within prescribed weight restrictions

Ref.	Issues raised	Response
		• Increase machine sizes to allow to work from roadside under ROL's (EWP's, cranes etc) • Exclusion zones implemented and maintained during construction phase by spotter. (NO GO ZONE)

Our Ref: 21395

16 April 2024

JCDecaux Australia & New Zealand
Level 11, 180 George Street
Sydney NSW 2000

Attention: Cordelia Maxwell-Williams

Dear Cordelia,

RE: PACIFIC HIGHWAY, HORNSBY – DIGITAL SIGNAGE
RESPONSE TO DEPARTMENT OF PLANNING, HOUSING AND INFRASTRUCTURE

As requested, please find herein The Transport Planning Partnership (TTPP)'s response to the Department of Planning, Housing and Infrastructure's (DPHI) assessment for the proposed digital sign on Pacific Highway, Hornsby.

Background

JCDecaux on behalf of Sydney Trains has previously lodged a development application (DA23/15294) for a proposed digital sign on the Pacific Highway at Hornsby. DPHI has requested additional information pertaining to the following issues:

- Safe stopping sight distance
- Clear zone safety
- Distraction risk
- Risks associated with the digital sign outcompeting directional signage
- Inconsistency with the Transport Corridor Outdoor Advertising and Signage Guidelines
- Assessment against Schedule 5, State Environmental Policy (Industry and Employment) 2021
- Decision-making requirements.

The other issues raised are not relevant from a road safety perspective.

It is noted that some of DPHI's requirements for more information are subjective and not required for a Signage Safety Assessment (SSA). Further, it is important to differentiate between a road safety audit and an SSA. A road safety audit of a proposed digital signage

location involves a subjective assessment in relation to road safety which is influenced by the auditors experience and understanding of drivers behaviour on approach to digital signage and their disposition towards digital signage from a road safety perspective. Meanwhile, the purpose of an SSA is to assess the proposed digital sign against the relevant safety and advertising policies and guidelines stipulated by the relevant government agencies.

Pertinently, TfNSW provided concurrence with no objections for a proposed digital sign on Pacific Highway, Hornsby as shown in **Attachment One.**

The details of DPHI's request for information is provided in **Attachment Two**. TTPP previously prepared a digital signage assessment report for the development application which is provided in **Attachment Three**.

The purpose of this letter is to provide a response to DPHI's request, in particular the traffic and road safety issues raised for the proposal.

TTPP Response

Sight Stopping Distance

The Digital Sign Safety Assessment only identified one hazard source as requiring a stop -the red signal from the signalised traffic intersection. There are other hazards associated with hazardous stops for road users, such as back-of-queue due to traffic conditions, vehicles turning left into Government Road or stopping to wait for pedestrians to cross Government Road. Please detail all potential hazards and the implications in terms of the safe sight stopping distance(s).

Regarding safe stopping sight distance, Criteria 3.2.3 of the Transport Corridor Outdoor Advertising and Signage Guidelines (Signage Guidelines) requires the following regarding the placement of a sign:

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.

The Austroads Guide to Road Design Part 3 states that the SSD is measured along the roadway, and it must be available along all traffic lanes at all times. In addition, the Signage Guidelines state that Criteria 3.2.3 a) applies:

- *"to minimise distraction near decision making points and conflict points, and ensure there is sufficient distance for a driver to recognise, react and, if required, stop safely before reaching one of these points".*

Therefore, to comply with this requirement, the sign must not be located within the safe stopping sight distance on the approach to the decision-making point or conflict point.

The proposed digital sign is located beyond the Government Road intersection with Pacific Highway, so it is outside the scope of the safe stopping sight distance assessment and meets the criteria set out in Criteria 3.2.3 of the Transport Corridor Outdoor Advertising and Signage Guidelines.

Furthermore, there is adequate sight distance along Pacific Highway as the road has a straight alignment to potential stopping hazards such as back-of-queues due to traffic conditions. This is evident from the signage exposure images in Section 2.3 of the SSA report attached in **Attachment Three.** Moreover, due to the high volume of traffic along Pacific Highway and signalised intersection, drivers will be on high alert and have an elevated expectancy of stopping.

Additionally, motorists turning left into Government Road from Pacific Highway have clear visibility on approach and towards pedestrians waiting to cross the road due to the low angle of the left turn lane on approach as shown in Figure 1. There have also been no incidents at this crossing location in the last 5 years so there is no discernible inherent crash risk at this location, noting that there is also an existing static sign at the corner of Government Road and Pacific Highway.

Therefore, TTPP is of the view that there is adequate safe stopping sight distance and visibility on approach to potential stopping hazards.

Overall, there is no concerning safety issues and the proposed digital sign will be smaller compared to the existing static sign and therefore, the proposal could not be expected to worsen the road safety compared to the existing situation. This is further demonstrated by the fact that there has only been one incident within the visible distance of the existing static sign across the last five years. Further, TTPP are of the view that there are no other concerning hazards at this location.

Figure 1: Approach onto Government Road

Source: Google Streetview dated April 2023)

The Digital Sign Safety Assessment uses a driver reaction time of 1.5 seconds. Two seconds should be used for sight stopping distance calculations as per Footnote 4, Table 5.5, of the Australian Road Guidelines Part 3. Please provide justification as to why a reaction time of 1.5 seconds is considered suitable. Further, calculate the sight stopping distance using a driver reaction time of two seconds.

Table 5.2 of the Austroads Guide to Road Design Part 3 provides the typical road conditions and driver reaction times. A reaction time of 2.0 seconds is used for road conditions in "higher speed urban areas" and with "few intersections". A 1.5 second reaction time is used in alert driving conditions where there is a "High expectancy of stopping due to traffic signals" and "built up areas – high traffic volumes".

A 7-day automatic tube count was carried out along Pacific Highway in proximity to the site and measured a daily average of 11,615 vehicles in the northbound direction. This data is provided in **Attachment Four**. In addition, the proposed site is in close proximity to Westfield Hornsby (within 100 metres) and therefore, the section of road analysed would be considered within a built-up area with high traffic volumes.

Furthermore, TTPP notes that Pacific Highway, Hornsby comprises the following road and geometric elements that pertain to alert driving conditions:

- High expectancy of stopping due to traffic signals
- Built-up area – high traffic volumes

- Built-up area with direct accesses and intersections.

Moreover, Pacific Highway features frequent signalised intersections, including one in the vicinity to the proposed digital sign, which would contribute to drivers having an elevated expectancy of stopping and thereby, a lower reaction time.

Therefore, based on the criteria of Table 5.2 in the Austroads Guide to Road Design Part 3, a reaction time of 1.5 seconds is considered more suitable for the safe stopping sight distance assessment.

It is understood that a conservative design speed of 10 km/h above the posted legal speed limit is typically used to calculate the safe sight stopping distance. Please justify why a design speed of 60 km/h was used for this assessment. Also, please provide a calculation of the stopping distance using a design speed of 70 km/h.

Transport for NSW's (TfNSW) Technical Direction – TD 00030:2023 provides clarification to the speed zone review process and types of speed zones as part of TS 03631:1.0 NSW Speed Zoning Standard.

Section 5.7 of the technical direction states:
"Design speed should match the posted speed for streets signposted at 50 km/h and below. In the absence of any other evidence, the design speed is 10 km/h above the posted speed on main roads signposted at 70 km/h and above as stated in Austroads Guide to Road Design Part 3 Section 3.3 Operating Speeds on Urban Roads. ***For streets and roads signposted at 60 km/h the design speed should match the context and movement function of the street."***

Pacific Highway at this location is within a 60km/h speed zone, and therefore, the design speed should match the context and movement function of the street. Alternatively, the operating speed of the road can be used instead of the design speed if the road has been built and is in use. The 85th percentile speed limit is used as the operating speed of the road and is a more accurate alternative to estimating a design speed.

A 7-day automatic tube count was carried out along Pacific Highway in proximity to the site and measured an 85th percentile speed of 50km/h (rounded up from 49.5km/h). The data pertaining to speeds along Pacific highway is available in **Attachment Three**. Therefore, 50 km/h is the more appropriate design speed to use at this location, which is significantly less than the suggested use of 70km/h.

Based on the Austroads Guide to Road Design Part 3, the stopping sight distance (SSD) requirement for a 50km/h design speed, a 1.5s reaction time and a flat gradient is 48m. The sign would be situated 45m from the stop line as assessed in the SSA report. However, given that the sign would be situated to the left of the roadway it would not be readable when in close proximity to the sign due to it being out of a driver's field of view, as shown in Figure 2. This picture shows the edge of the existing static sign; however the proposed digital sign will be setback 1m further from the footpath. This image is taken a distance of 5m from the sign,

which would be a distance of 50m from the stop line. Therefore, the sign would not be readable within the 48m SSD required from the stop line as shown in Figure 3.

Figure 2: Minimum Visible Distance

Source: TTPP site visit 02/02/2023

Figure 3: Safe Stopping Sight Distance

Basemap Source: Nearmap Aerial Imagery dated 25/03/24

Clear Zone Safety

The assessment indicates that the edge of the display sign is likely to be offset four metres from the edge of the traffic lanes. The monopole would be offset around six metres. The Austroads Guide to Road Design outlines that a clear zone should be a minimum of five metres at a design speed of 60 km/h. It is understood that it is common practice in road design to adopt a higher speed, typically 10 km/hr above posted speed limit when calculating the clear zone.

This is addressed in the response above, which establishes that 50km/h is the more accurate speed to design for based on traffic surveys undertaken in the vicinity of the sign.

Please justify why a design speed of 70 km/h was not used for the clear zone analysis. Further, please justify why a clear zone offset of less than five metres is acceptable, outlining the associated risks and implications for traffic incidents where a vehicle may run off the road.

A clear zone offset requirement of five metres in a 70km/hr speed environment is from an outdated Austroads guide which has since been superseded.

It is noted that the most recent revision of the Austroads Guide to Road Design Part 6 does not provide guidelines for clear zone requirements. In fact, it now concludes the following:

"Clear zones should now be considered in the following light:

- Clear zones cannot deliver Safe System outcomes in isolation and should be regarded as a supporting treatment.
- Some clear zone is better than none at all when continuous lengths of barrier cannot be installed.
- Clear zones should be regarded as having the potential to be a hazard in their own right in the same way that barriers are afforded this attention."

Therefore, there is no requirement to provide a 5m clear zone width based on the most up-to-date road design guidelines available in Australia.

It is also noted that the proposed digital sign will be setback 1m further from the road compared to the existing sign and will therefore improve the existing road safety environment in regard to clearance. It will also continue to be located behind an existing brick retaining wall.

Distraction Risk

The Digital Sign Safety Assessment does not address all of the potential distraction risks associated with the sign on road users (motorists, pedestrians and cyclists). Please assess the risk of distraction posed by the sign on:

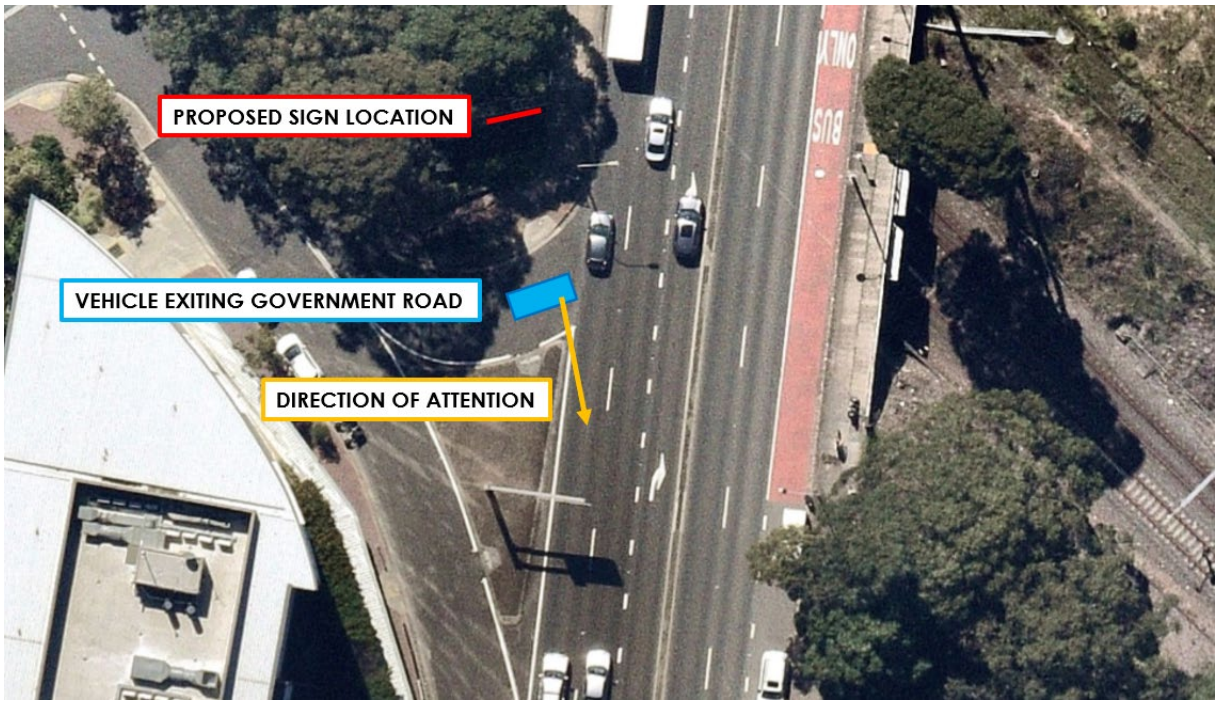
- ***motorists and cyclists turning from Government Road onto the Pacific Highway. The assessment fails to acknowledge that the sign would be visible to drivers exiting from Government Road and that they would need to look left before pulling out to make sure that the traffic lane is clear and that there are no stopped vehicles preventing them from turning onto the highway;***
- ***motorists and cyclists turning left into Government Road from the Pacific Highway; and***
- ***pedestrians heading north along the highway and crossing over Government Road.***

The assessment should be based on the worst-case scenario that the sign will be highly distracting.

Whilst on site, it was observed by TTPP that drivers were focussed on oncoming traffic when turning into Pacific Highway from Government Road. When pulling out drivers were looking out the front window for traffic within the traffic lane. The proposed digital sign would be located at a 90-degree angle from a stopped vehicle and would only be observable by looking left through the side window. This would be in the opposite direction drivers and cyclists are focussed on as shown in Figure 4.

Therefore, TTPP deems that it would be highly unusual for drivers exiting Government Road to be looking out the left side window to observe the sign and is therefore not considered a safety risk. This would be the case for cyclists as well, which were not observed along Pacific Highway during our site inspection.

Figure 4: Driver Exiting Government Road onto Pacific Highway



Basemap Source: Nearmap Aerial Imagery dated 25/03/24

A driver and cyclist will be able to turn left into Government Road from Pacific Highway with clear vision towards pedestrians crossing because of the angle of approach as shown in Figure 1.

In addition to this, as noted above, there is clear visibility towards pedestrians waiting to cross, or travelling north on Government Road due to the low angle of the left turn lane on approach. There have also been no incidents at this crossing location in the last 5 years so there is no discernible inherent crash risk at this location, even with the existing large format static sign.

Furthermore, pedestrians travelling north along Pacific Highway have sufficient time to process signs and messages and therefore, are unlikely to be distracted by the proposed digital sign when crossing. Similar to drivers and cyclists, pedestrians would be looking towards oncoming traffic from Pacific Highway away from the proposed digital sign to find suitable gaps in traffic before crossing Government Road.

The requirement that these scenarios be assessed based on the worst-case scenario that the sign will be highly distracting is also deemed unreasonable considering the lack of evidence or reasoning to suggest as such.

There is currently a large format static sign at this location which has a total display area of 42.41m^2 (12.66m wide by 3.35m high) and is proposed to be replaced by a digital sign measuring 14.93m^2, (3.172m wide by 4.708m high). This significantly reduces the total

advertising display area facing traffic and pedestrians, thereby reducing the advertising impact along the roadside environment.

In addition is noted that there is good evidence to suggest that digital signs are not a road safety distraction risk to driver's as apparent in the studies detailed below.

Relationship between Fixation and Distraction (Samsa)

A study was carried out in November 2015 by Carolyn Samsa, Level 3 Road Safety Auditor at Samsa Consulting, which assessed whether digital billboards are distracting to motorists.

The study included 29 participants aged between 25 and 54 years old fitted with eye tracking glasses driving an instrumented vehicle along a 14.6km route in Brisbane, Queensland. This route passed a number of advertising signs, including digital and static billboards and on-premises signage. The number of fixations and dwell times towards advertising signs were recorded, along with lateral deviation and vehicle headway.

The study identified that the average eye fixation duration spent by drivers observing a digital billboard is 0.207 seconds. This is well below 0.750 seconds which is considered to be the minimum perception-reaction time to an unexpected event. This indicates that motorists would not spend long periods fixated on the proposed digital sign and motorists would have spare cognitive capacity to observe the road environment ahead in the presence of a digital sign without an increased risk of a collision.

The study also identified that digital billboards do not draw drivers' attention away from the road for dangerously long periods of time compared to other signage types (i.e. static billboards and on-premise advertising signs). The findings of Samsa's investigation supported international studies which generally found that the presence of billboards did not significantly affect the percentage of time drivers devoted to glancing at the forward roadway.

On-Road Driving Performance from Digital Signs (ARRB)

A study undertaken by the Australian Road Research Board (ARRB) (2018) evaluated the on-road driving performance of digital billboards at two intersections in Queensland.

The study assessed the impact on driving performance before and after installation of new digital billboards at two Queensland intersections at Phillip St-Dawson Hwy Gladstone and Elkhorn Ave- Surfer's Paradise Blvd Surfers Paradise. These two signs used three different dwell times of 30 seconds, 20 seconds and 10 seconds, and 24 seconds, 16 seconds and 8 seconds, respectively.

The study found that vehicle lateral control performance either improved or was unaffected by the presence of digital billboards at various dwell times. These results were consistent with previous research which showed that drivers are able to safely view roadway signage for

relatively long periods of time if the sign is positioned at a relatively narrow angular offset from the centreline of the road (e.g. Schieber, Burns, Myers, Gilland & Willian, 2004).

The study concluded that "there was almost no evidence that the digital billboards at these locations impaired driving performance". The study also identified that there could be an apparent positive impact on driving performance from the presence of a digital billboard, as evidenced in the reduction in stopping over the line violations post-installation of the digital sign.

Relationships between Distraction and Crashes (Bitzios)

Based on Bitzios' literature review in previous digital SSA's, Bitzios has noted that current research on digital signs and distractions indicate that there is no valid link between roadside advertising and increased crash risk; namely:

"There is consensus in the literature that the majority of crashes which occur in urban areas are due to driver error. Victor et al. (2005) highlights that human error is the cause of up to 92.6 percent of accidents on the road. In order to minimise the risk of crashes drivers need to: be aware of external environmental influences, interpret the risks associated with these external environmental influences, make decisions, and carry out actions (Perez & Bertola 2011).

Even though human error is the cause of most crashes, Lam (2002) reviewed NSW crash data and found that out of 414,136 crashes, distraction was a factor in 15,059 (3.6%) of them. Distractions coming from outside the vehicle were determined to be a factor in only 2.5% of all crashes. This low influence of external distractions to crashes was reinforced by the Monash University Accident Research Centre (MUARC) carried out a study on crashes in Victoria and NSW between 2000 and 2011, and found the most common causes of crashes as summarised in Table 6.1 [table below]."

Table 1: Causes of Vehicle Crashes in NSW and Victoria

Percentage of Crashes	Cause
13.5%	Intoxication
11.8%	Fell asleep
10.9%	Fatigued
3.2%	Failed to look
3.2%	Passenger interaction
2.6%	Fell ill
2.6%	Blacked out
1.8%	Feeling stressed
1.5%	Looked but failed to see
1.4%	Animal or insect in vehicle
0.9%	Using a mobile phone
0.9%	Changing CD/cassette/radio
0.9%	Adjusting vehicle systems
0.9%	Looking at vehicle systems
0.3%	Searching for objects

Source: Bitzios, Cormorant Road, Kooragang, Proposed Westbound Digital Sign Traffic Safety Assessment (2022)

Based on Bitzios' study, it is evident that driver distraction due to the presence of billboards/ advertising signage is not a common cause of crashes. This is also consistent with Austroads' (2013) findings on the effect of roadside advertising on road crashes, which found that "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".

The above literature review suggests that there is no indication that digital signs contribute to driver distraction resulting in incidents when compared to static signage. In addition, there is no evidence that driver behaviour and performance are affected by the presence of digital billboards. It can therefore be assumed that the sign will not be highly distracting, and drivers will have cognitive ability to register any potential road safety risks along with the sign simultaneously.

The Digital Sign Safety Assessment assumes that the proposed sign would be in a driver's peripheral view. It is considered that the sign would be within the lateral scan of the road and verge ahead. Please discuss the distraction risks associated with the sign based on it being within a driver's lateral view.

As detailed above, the sign would replace the much larger existing static sign at this location. As evident in the studies detailed, there is nothing to suggest that a smaller digital sign would be any more of a distraction than the existing static sign.

Drivers in built up environments are accustomed to roadside advertising within their peripheral view and are able to process this information alongside the potential risks within the road environment. Further to this, there is no evidence that digital signs contribute more to driver distraction incidents compared to static signage, and therefore it is TTPP's view that there are

no distraction risks associated with the lateral view of the proposed digital sign compared to the existing environment.

In addition, the review of the crash history at this location as presented in the SSA report, provided in **Attachment Three,** shows that there has only been one incident within the readable or visible distance to the sign which indicates that there is no present road safety risk at this location, even with the existing large format static sign. Nor are there any future road safety risks.

Risks Associated with the Digital Sign Outcompeting Directional Signages

There is no acknowledgement that from certain points the proposed sign and directional sign would be in the same vertical field of view. As such, the sign could outcompete the directional sign for the driver's attention. Further, the assessment only discusses the visibility and legibility of the directional sign and not the impact that it would have on lane-choice implications and possible multiple manoeuvres as drivers change lanes.

Please address the impacts that the proposed signage could have on drivers' decision-making elements, such as changing-lanes, which would be made based on the directional signage.

The sign would not be positioned directly below the directional signage and therefore not within the same vertical field of view as it is offset on the left side of the road, as opposed to the directional sign which is situated above the roadway. This is evident in the signage exposure images in Section 2.3 of the SSA report attached in **Attachment Three.**

The directional sign would be visible from 115m away and is situated approximately 20m south of the proposed digital sign. The driving approach from 115m away to the directional sign is presented below in Figure 5. As evident, the proposed digital sign would be obscured by poles and vegetation at this point, and the directional signage would be clearly distinct situated above the roadway. The digital sign would be visible approximately 20m after the directional sign comes into view.

Drivers requiring directional guidance would primarily be focussed on the directional signage and would have visibility of this sign before the digital sign comes into view. They would be able to make their lane change with adequate time before the traffic signals, so this is not considered a safety risk.

Furthermore, as discussed above there is no evidence that there is a crash risk at this location even despite the existing static sign (which is larger than the proposed digital sign).

Figure 5: Driving Approach to Directional Signage

Basemap Source: Nearmap Aerial Imagery dated 25/03/24

Inconsistency with the Transport Corridor Outdoor Advertising and Signage Guidelines

The placement of the sign is inconsistent with Section 3.2.3 of the Transport Corridor Outdoor Advertising and Signage Guidelines (Department of Planning and Environment, 2017) (the 2017 Guidelines). Section 3.2.3 of the 2017 Guidelines states that an advertising sign should not be located where it is visible from the terminating leg of a T-intersection. The sign would be visible from Government Road which is the terminating leg of T-intersection with the Pacific Highway. Please provide justification as to why the non-compliance with the 2017 Guidelines is acceptable.

This is addressed in the Distraction Risk section; it is not seen as a safety risk due to the location of the sign.

Assessment against Schedule 5, State Environmental Policy (Industry and Employment) 2021

Section 3.1 of the Safety Assessment states that Schedule 5 -clause 7 of State Environmental Planning Policy (Industry and Employment) 2021 is unrelated to road safety. This is not correct as illumination could cause glare for drivers. Please provide a response to the relevant requirements in Schedule 5, clause 7.

The sign shall not contain:

- Flashing or flickering lights or content.
- Animated displays, moving parts or simulated movement.

- Complex displays including text and information that hold a driver's attention beyond "glance appreciation".
- Displays resembling traffic control devices by use of colour, shape or words that can be construed as giving instruction to traffic for example, red, amber or green circles, octagons, crosses, triangles and words such as 'stop' or 'halt'.
- A method of illumination that distracts or dazzles.
- Dominant use of colours red or green.

Therefore, the illumination of the sign is unlikely to result in any adverse impact on road safety. The illumination of the sign is further assessed as part of the Lighting Impact Assessment Report.

Decision-making Requirements

The Digital Sign Safety Assessment only considers the competition between the directional signage and proposed digital signage. Please assess other decision-making requirements such as the competition between the proposed signage vs the closing gap ahead of the road user, the proposed signage vs the traffic signals and the proposed signage vs pedestrian movements.

The sign has been assessed against the traffic signals and pedestrian movements using the criteria set out in Clause 3.2.3 of the Transport Corridor Outdoor Advertising and Signage Guidelines and meets these requirements, as discussed above.

The Guide defines a decision-making point as "areas in which merging, diverging, turning and weaving traffic manoeuvrers take place", and conflict points as "intersections or pedestrian crossings where crash risk is greater". Regarding the closing gap ahead of the road user this is understood as the gap between a motorist and the back of a queue. The potential hazards associated with this alongside with the traffic signals and pedestrian movements have been assessed in the responses above.

The desire lines provided in the Digital Sign Safety Assessment are limited to the area immediately surrounding the sign. The subject area is one of high pedestrian activity and it is considered that the desire lines should have been extended to take into account the key destination points of Hornsby Station and the Westfield Shopping Centre. Walking is the most fluid, unrestricted form of movement around roads and pedestrians often take the shortest route available. Please provide an assessment of the potential risks of wayward pedestrian movements where a pedestrian may be distracted by the sign.

There are adequate pedestrian facilities available for pedestrians to cross safely within the vicinity of the sign. Pedestrians are inherently going to cross the road when there are suitable gaps in traffic. It is unlikely that these pedestrians would be distracted by the sign given they would be focused on observing safe gaps in traffic before crossing the road.

Furthermore, there are designated kerb ramps with "LOOK" pavement marking and tactile ground surface indicators for pedestrians crossing Government Road. These facilities provide further delineation to distinctly guide and warn pedestrians when crossing Government Road.

Given the high traffic volume on Pacific Highway and that it is six lanes wide, pedestrians will use the signalised intersection to cross Pacific Highway, and it is highly unlikely that another route would be used. This was supported by on-site observations.

There is also pedestrian fencing along Government Road which prohibits pedestrians from crossing closer to the intersection with Pacific Highway. Therefore the pedestrian desire line is to cross at the provided refuge island on Government Road. This was also supported by on-site observations.

In summary, it is considered improbable that a pedestrian would be so distracted by the sign that they would walk waywardly out onto the road and therefore this is not regarded as a safety risk.

Summary and Conclusion

Overall, the proposed digital sign is considered acceptable from a road safety perspective. Many of DPHI's requests are considered arduous and, in some cases, subjective, especially when considering the requirements set out by the relevant guidelines and policies have been met to a satisfactory level.

Studies undertaken in Australia indicate that there is no indication that digital signs contribute to driver distraction resulting in incidents when compared to static signage. In addition, there is no evidence that driver behaviour and performance are affected by the presence of digital billboards. It can therefore be assumed that the sign will not be highly distracting, and drivers will have cognitive ability to register any potential road safety risks along with the sign simultaneously.

Consequently, as the sign satisfies the policies and guidelines as stipulated by the relevant government agencies, the replacement of the existing static sign with a smaller digital sign is not considered to negatively impact road safety along Pacific Highway or Government Road.

We trust the above is to your satisfaction. Should you have any queries regarding the above or require further information, please do not hesitate to contact the undersigned on 8437 7800.

Yours sincerely,

Wayne Johnson
Director

Attachment One

TfNSW Concurrence Letter

Transport for NSW

8 December 2023

TfNSW Reference: SYD23/00174/02
DPE Reference: PAN-381735 DA 23/14504 (CNR-62392)

Ms Kiersten Fishburn
Secretary
Department of Planning and Environment
Locked Bag 5022
PARRAMATTA NSW 2124

Attention: Chris Fraser

CONSTRUCT DIGITAL ADVERTISING SIGNAGE ON OVERHEAD RAILWAY
SYDNEY PARK ROAD, ERSKINEVILLE

Dear Ms Fishburn,

Reference is made to the Department's correspondence regarding the abovementioned application which was referred to Transport for NSW (**TfNSW**) for comment.

TfNSW has reviewed the submitted application and provides the following advisory comments to assist the Department in its determination of the application:

1. The proposed design and operation of the sign shall be in accordance with the Transport Corridor Outdoor Advertising and Signage Guidelines 2017 (**Guidelines)** requirements.

2. The images displayed on the sign must not contain/use:
   - Flashing or flickering lights or content.
   - Animated displays, moving parts or simulated movement.
   - Complex displays including text and information that hold a driver's attention beyond "glance appreciation".
   - Displays resembling traffic control devices by use of colour, shape or words that can be construed as giving instruction to traffic for example, red, amber or green circles, octagons, crosses, triangles and words such as 'stop' or 'halt'.
   - A method of illumination that distracts or dazzles.
   - Dominant use of colours red or green.

3. Dwell times between displays shall be no shorter than 10 seconds.

4. A Road Occupancy Licence (**ROL**) should be obtained from Transport Management Centre for any works that may impact on traffic flows on the subject section of Sydney Park Road or Princes Highway / King Street during construction activities. A ROL can be obtained through https://myrta.com/oplinc2/pages/security/oplincLogin.jsf.

Should you have any further inquiries in relation to this matter, please contact Matthew Houlden by email at development.sydney@transport.nsw.gov.au.

Yours sincerely,

Rachel Davis
Senior Land Use Planner
Land Use Assessment Eastern
Planning and Programs, Greater Sydney Division

4 Parramatta Square, 12 Darcy Street Parramatta NSW 2150
PO Box 973 Parramatta CBD NSW 2124
W transport.nsw.gov.au

Attachment Two

DPHI Response

Department of Planning and Environment

Portal Application Number: PAN-385796

Our ref: DA 23/15294

Mr Greg Attewell
Sydney Trains
36-46 GEORGE STREET
BURWOOD NSW 2134

12 March 2024

Subject: PAN-385796 – Digital Signage on Pacific Highway, Hornsby

Dear Mr Attewell,

I refer to the above Part 4 development application for a proposed digital signage on the Pacific Highway at Hornsby (PAN-385796), submitted via the Planning Portal on 17 November 2023 (the application).

After careful consideration, the Department requests that you provide the additional information outlined in **Attachment A** in accordance with clause 36 of the *Environmental Planning and Assessment Regulation 2021* (the Regulation). At the date of this letter, 53 days in the assessment period have elapsed. The Department requests that you provide the consolidated response by **26 March 2024** via the NSW Planning Portal. If you are unable to provide the requested information within this timeframe, you are required to provide, and commit to, a timeframe detailing the provision of this information.

If you have any questions, please contact Natalie Froud, Planning Officer on (02) 8275 1684, or via email at natalie.froud@dpie.nsw.gov.au

Yours sincerely

M. Garland

Mary Garland
Team Leader, Transport and Water Assessments

As delegate for the Minister for Planning and Public Spaces

Enclosed: Attachment A

Attachment A

1. Sight Stopping Distance

- The Digital Sign Safety Assessment only identified one hazard source as requiring a stop -the red signal from the signalised traffic intersection. There are other hazards associated with hazardous stops for road users, such as back-of-queue due to traffic conditions, vehicles turning left into Government Road or stopping to wait for pedestrians to cross Government Road. Please detail all potential hazards and the implications in terms of the safe sight stopping distance(s).
- The Digital Sign Safety Assessment uses a driver reaction time of 1.5 seconds. Two seconds should be used for sight stopping distance calculations as per Footnote 4, Table 5.5, of the Australian Road Guidelines Part 3. Please provide justification as to why a reaction time of 1.5 seconds is considered suitable. Further, calculate the sight stopping distance using a driver reaction time of two seconds.
- It is understood that a conservative design speed of 10 km/h above the posted legal speed limit is typically used to calculate the safe sight stopping distance. Please justify why a design speed of 60 km/h was used for this assessment. Also, please provide a calculation of the stopping distance using a design speed of 70 km/h.

2. Clear Zone Safety

- The assessment indicates that the edge of the display sign is likely to be offset four metres from the edge of the traffic lanes. The monopole would be offset around six metres. The Austroads Guide to Road Design outlines that a clear zone should be a minimum of five metres at a design speed of 60 km/h. It is understood that it is common practice in road design to adopt a higher speed, typically 10 km/hr above posted speed limit when calculating the clear zone.
- Please justify why a design speed of 70 km/h was not used for the clear zone analysis. Further, please justify why a clear zone offset of less than five metres is acceptable, outlining the associated risks and implications for traffic incidents where a vehicle may run off the road.

3. Distraction Risk

- The Digital Sign Safety Assessment does not address all of the potential distraction risks associated with the sign on road users (motorists, pedestrians and cyclists). Please assess the risk of distraction posed by the sign on:
    - motorists and cyclists turning from Government Road onto the Pacific Highway. The assessment fails to acknowledge that the sign would be visible to drivers exiting from

Government Road and that they would need to look left before pulling out to make sure that the traffic lane is clear and that there are no stopped vehicles preventing them from turning onto the highway;

- motorists and cyclists turning left into Government Road from the Pacific Highway; and
- pedestrians heading north along the highway and crossing over Government Road.

The assessment should be based on the worst-case scenario that the sign will be highly distracting.

- The Digital Sign Safety Assessment assumes that the proposed sign would be in a driver's peripheral view. It is considered that the sign would be within the lateral scan of the road and verge ahead. Please discuss the distraction risks associated with the sign based on it being within a driver's lateral view.

4. Risks associated with the digital sign outcompeting directional signages

- There is no acknowledgement that from certain points the proposed sign and directional sign would be in the same vertical field of view. As such, the sign could outcompete the directional sign for the driver's attention. Further, the assessment only discusses the visibility and legibility of the directional sign and not the impact that it would have on lane-choice implications and possible multiple manoeuvres as drivers change lanes.
- Please address the impacts that the proposed signage could have on drivers' decision-making elements, such as changing-lanes, which would be made based on the directional signage.

5. Inconsistency with the Transport Corridor Outdoor Advertising and Signage Guidelines

- The placement of the sign is inconsistent with Section 3.2.3 of the *Transport Corridor Outdoor Advertising and Signage Guidelines* (Department of Planning and Environment, 2017) (the 2017 Guidelines). Section 3.2.3 of the 2017 Guidelines states that an advertising sign should not be located where it is visible from the terminating leg of a T-intersection. The sign would be visible from Government Road which is the terminating leg of T-intersection with the Pacific Highway. Please provide justification as to why the non-compliance with the 2017 Guidelines is acceptable.

6. Assessment against Schedule 5, State Environmental Planning Policy (Industry and Employment) 2021

- Section 3.1 of the Safety Assessment states that Schedule 5 -clause 7 of *State Environmental Planning Policy (Industry and Employment) 2021* is unrelated to road safety. This is not correct as illumination could cause glare for drivers. Please provide a response to the relevant requirements in Schedule 5, clause 7.

7. Decision-making requirements

- The Digital Sign Safety Assessment only considers the competition between the directional signage and proposed digital signage. Please assess other decision-making requirements such as the competition between the proposed signage vs the closing gap ahead of the road user, the proposed signage vs the traffic signals and the proposed signage vs pedestrian movements.
- The desire lines provided in the Digital Sign Safety Assessment are limited to the area immediately surrounding the sign. The subject area is one of high pedestrian activity and it is considered that the desire lines should have been extended to take into account the key destination points of Hornsby Station and the Westfield Shopping Centre. Walking is the most fluid, unrestricted form of movement around roads and pedestrians often take the shortest route available. Please provide an assessment of the potential risks of wayward pedestrian movements where a pedestrian may be distracted by the sign.

8. Other issues

- Details on utility services required to operate the sign have not been included. Please advise whether the services form part of the development or if they will be provided under another approval pathway. If these are to form part of the development application, details must be provided on the services along with an assessment of the construction impacts associated with providing the services.
- No details have been provided on the existing buried services, noting that there is a high pressure gas main in the vicinity of the proposed sign. Please provide details on all existing buried services and the measures that would be implemented to protect these during construction of the proposed sign.

Attachment Three

Digital Signage Safety Assessmen

Pacific Highway, Hornsby
Digital Sign Safety Assessment

Prepared for:

JCDecaux

1 February 2024

The Transport Planning Partnership

Pacific Highway, Hornsby

Digital Sign Safety Assessment

Client: JCDecaux

Version: V04

Date: 1 February 2024

TTPP Reference: 21395

Quality Record

Version	Date	Prepared by	Reviewed by	Approved by	Signature
V01	16/02/2023	Adeline Sim	Wayne Johnson	Wayne Johnson	Wayne Johnson
V02	23/02/2023	Wayne Johnson	Wayne Johnson	Wayne Johnson	Wayne Johnson
V03	11/07/2023	James Goodman	Jessica Ng	Wayne Johnson	Wayne Johnson
V04	18/07/2023	James Goodman	Jessica Ng	Wayne Johnson	Wayne Johnson
V04	01/02/2024	James Goodman	Wayne Johnson	Wayne Johnson	

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APPENDICES

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 (TTPP) 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 TTPP'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

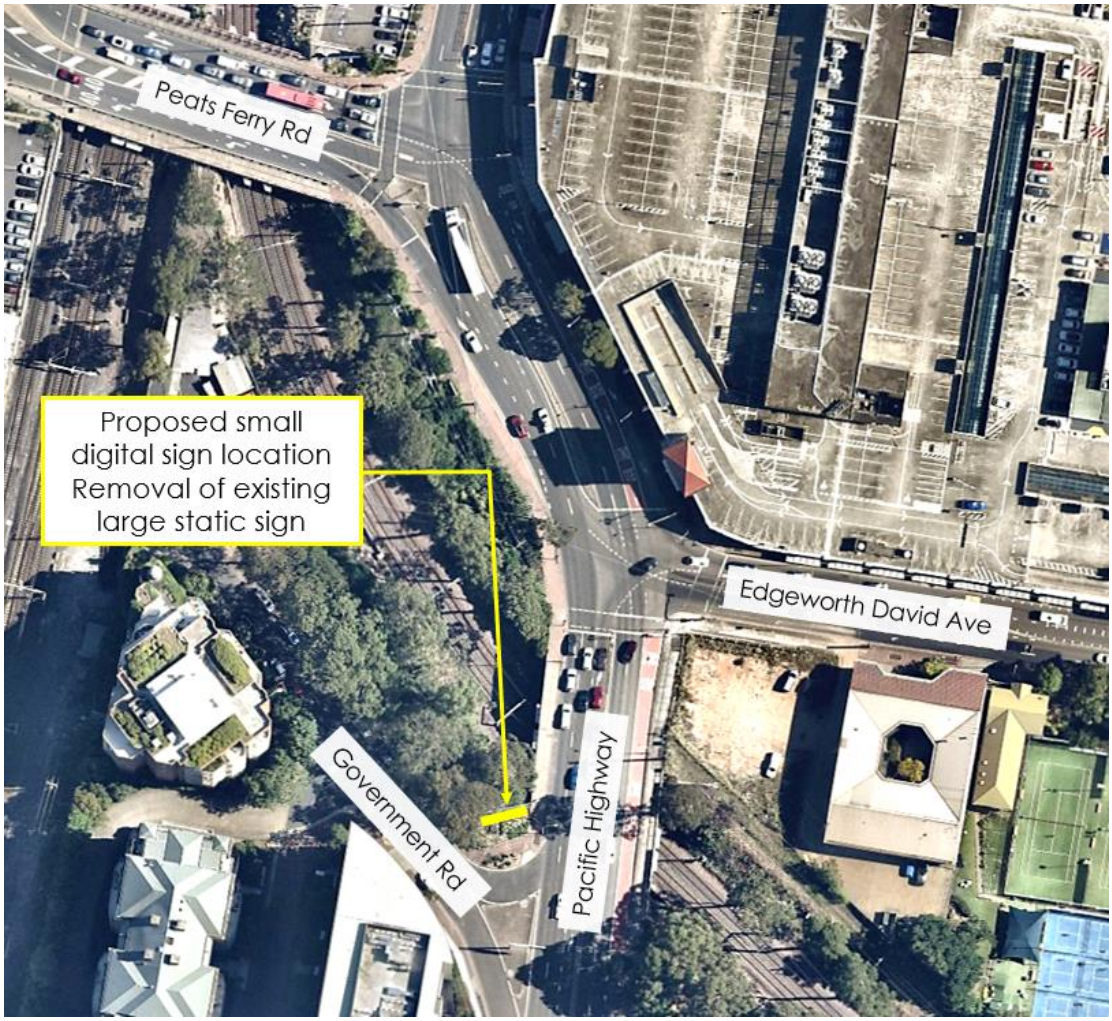
2.1 Location Details

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 m^2 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 m^2 (3.172 m width by 4.708 m height). The visual display area (the screen alone) would be 14.16 m^2 (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)

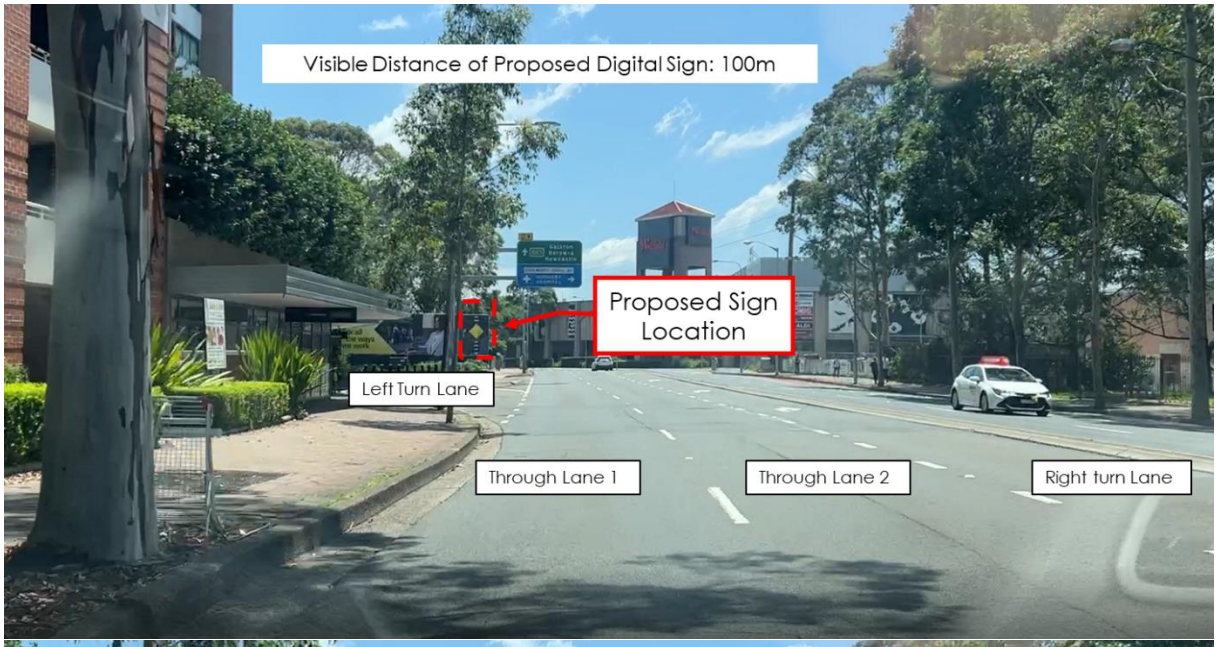
The lane configuration on the Pacific Highway northbound carriageway in the vicinity of the proposed digital sign is shown in Figure 2-3. The northbound through travel lanes and dedicated turn lanes are numbered and shown in Figure 2-3.

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

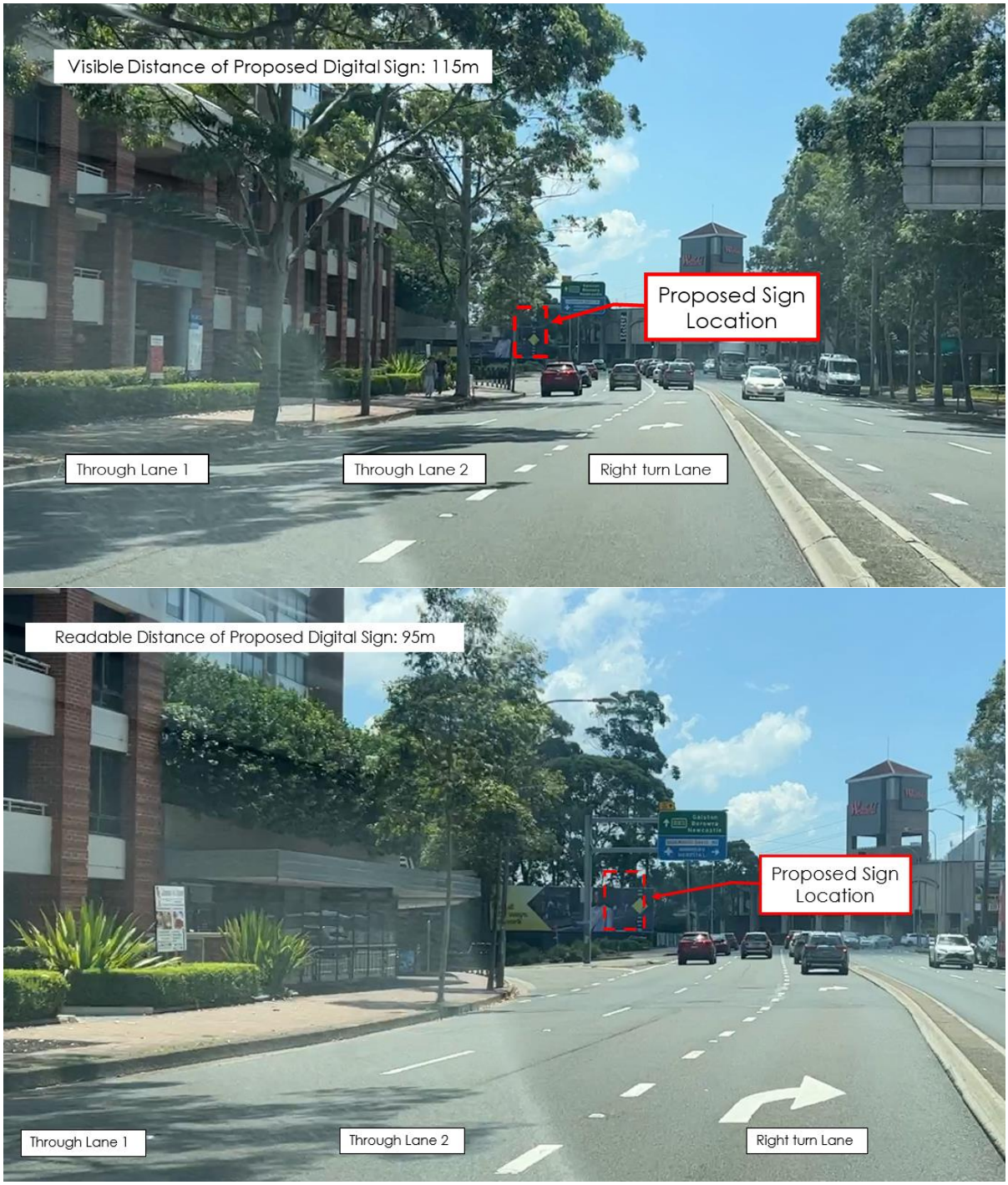


Source: Photograph taken by TTPP dated 02/02/2023

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.

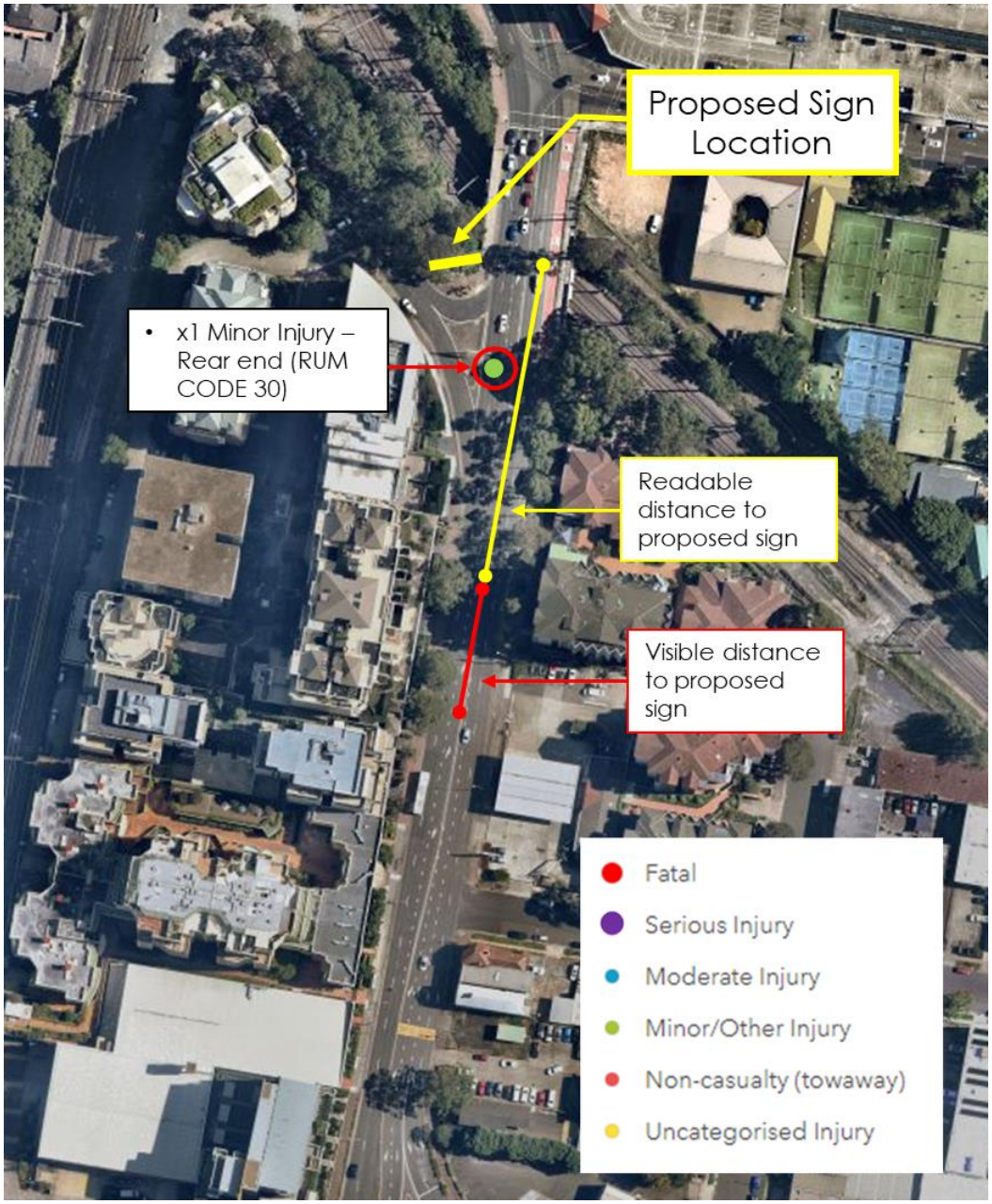
There was no other crash incident between the **visible distance** and the readable distance (i.e. remainder of the segment within the visible distance). The two slip left lanes along Government Road do not have any historic crash record as well within the 5-year period.

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 m²		Comments
A	*Each advertisement must be displayed in a completely static manner, without any motion, for the approved dwell time as per criterion (d) below.*	Relates to sign content only.
B	*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.*	Relates to sign content only.
C	*The image must not be capable of being mistaken:* *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* *ii. as text providing driving instructions to drivers.*	Relates to sign content only.
D	*Dwell times for image display are:* *i. 10 seconds for areas where the speed limit is below 80 km/h.* *ii. 25 seconds for areas where the speed limit is 80 km/h and over.*	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	*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.*	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	*Luminance levels must comply with the requirements in Section 3 (Transport Corridor Advertising Signage Guidelines).*	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	*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.*	It is assumed that this operational requirement would be met.
H	*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).*	Relates to sign content only.

	Criteria, for Signs greater than or equal to 20 m²	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 not 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 m². Criteria is applicable to signs greater than 20 m².
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 m². Criteria is applicable to signs greater than 20 m².
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 m². Criteria is applicable to signs greater than 20 m².
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 m². Criteria is applicable to signs greater than 20 m².

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.***

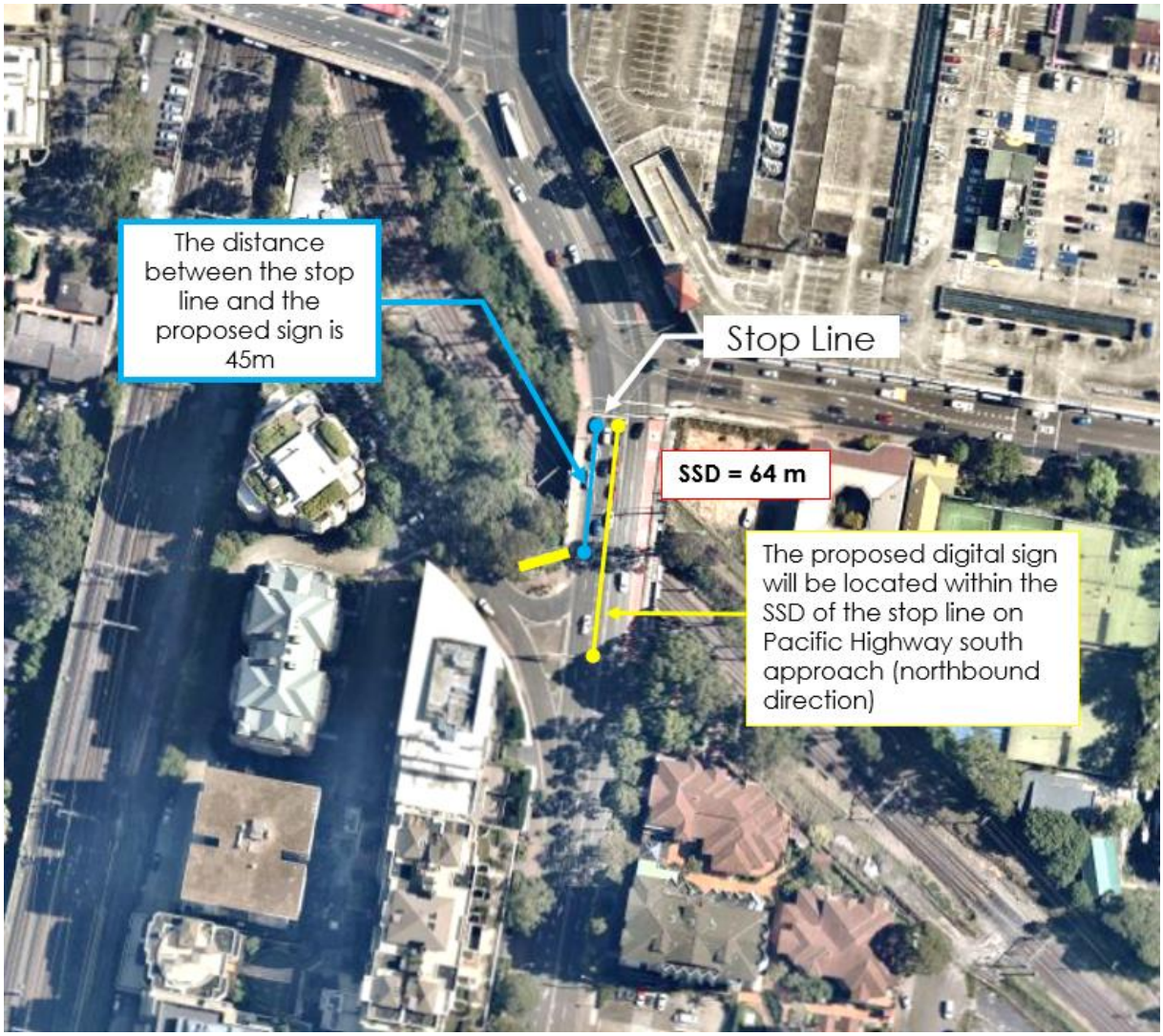
As referenced in the Guide to Road Design, Part 3, sight distance refers to the distance required to enable a driver to react and stop before reaching a hazard. This distance is dependent on the operating (85th percentile) speed of the road, road gradient and other road characteristics.

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 64m.

A site inspection was undertaken to assess the gradient of Pacific Highway on approach to the signals. The gradient was measured to be between 0.6% to -0.6%. Table 5.5 of the Austroads Guide to Road Design Part 3 provides the SSD correction due to changes in grade. Given corrections to change in grade commences at 2%, no grade correction to the SSD is required on approach to the signals.

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 TTPP on 24/05/2021

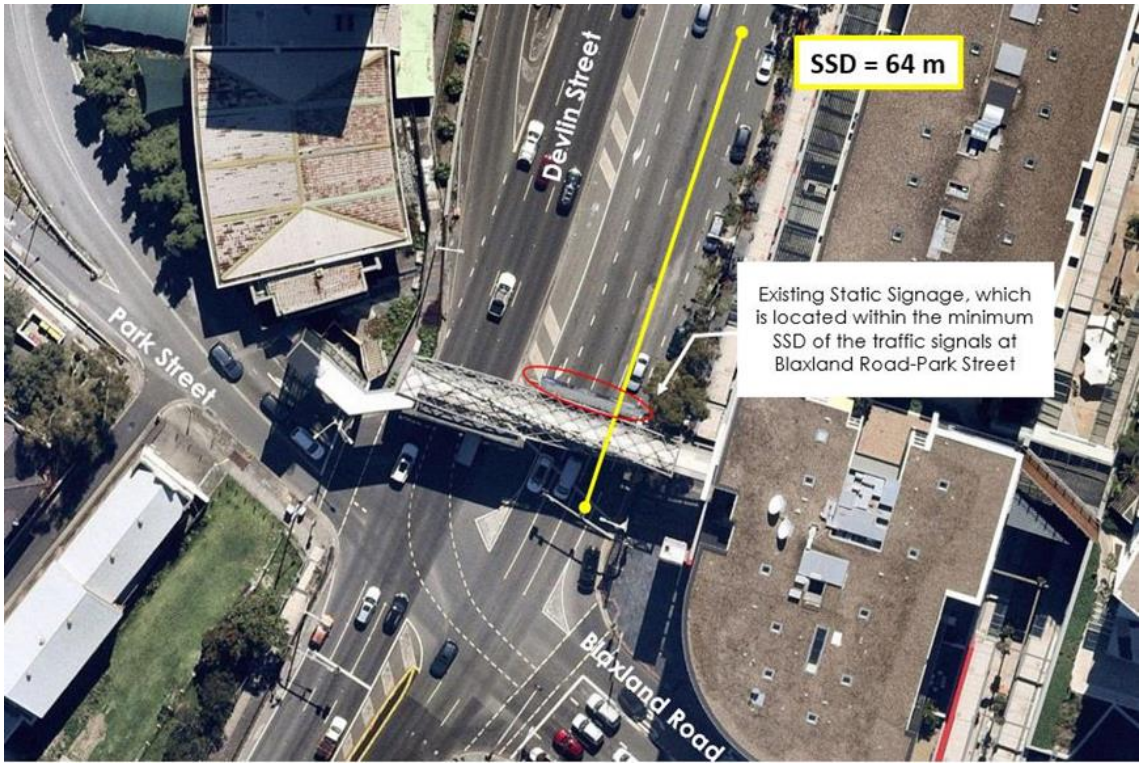
Figure 3-6: Safe Stopping Sight Distance on Pacific Highway, Gordon

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

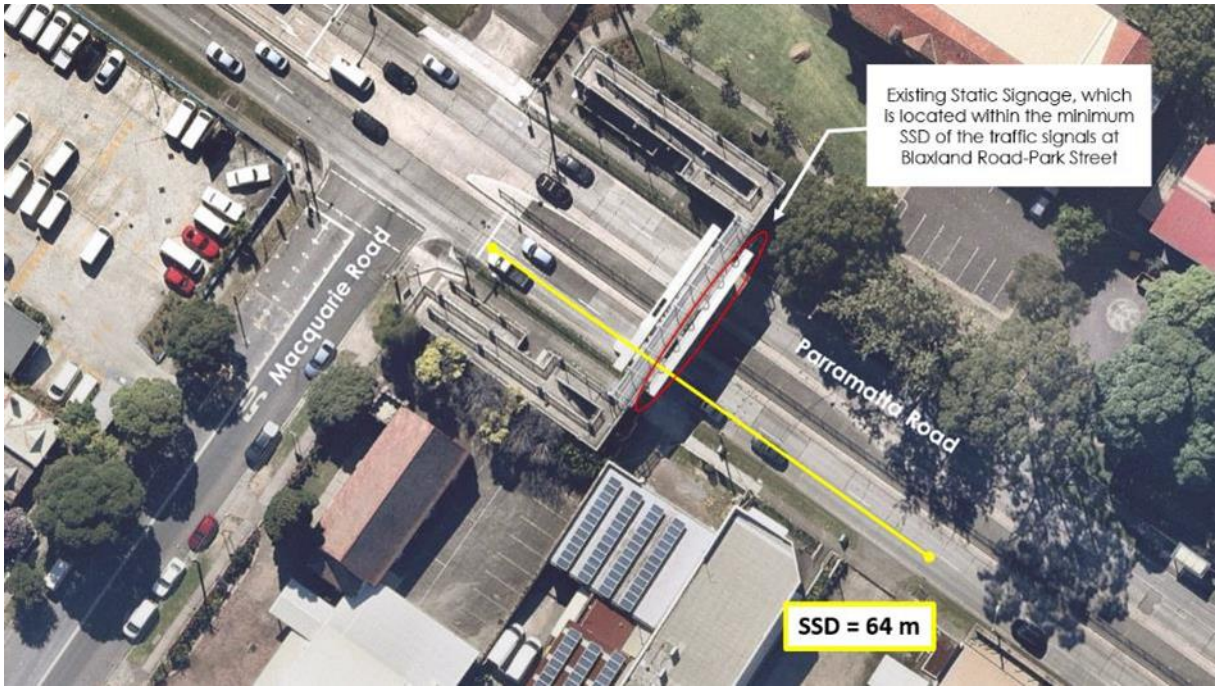


A fourth example is the static billboard fixed to the side of the overhead pedestrian bridge on Parramatta Road in Auburn. On the east approach to the Parramatta Road -

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), whist 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 16 December 2022 to date (accessed 4 July 2023 at 10:29)

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?

The Transport Planning Partnership
Suite 402 Level 4, 22 Atchison Street
St Leonards NSW 2065

P.O. Box 237
St Leonards NSW 1590

02 8437 7800

info@ttpp.net.au

www.ttpp.net.au

Attachment Four

Survey Results

TRANS TRAFFIC SURVEY
trafficsurvey.com.au

Site

Back to Site Summary Page

Direction Both directions

Day 7 Days

10km/h Speed Bin	
> 40 km/hr	57.06%
> 50km/hr	20.18%
> 60 km/hr	1.29%
> 70 km/hr	0.04%
> 80 km/hr	0.00%
> 90 km/hr	0.00%
> 100 km/hr	0.00%
> 110 km/hr	0.00%

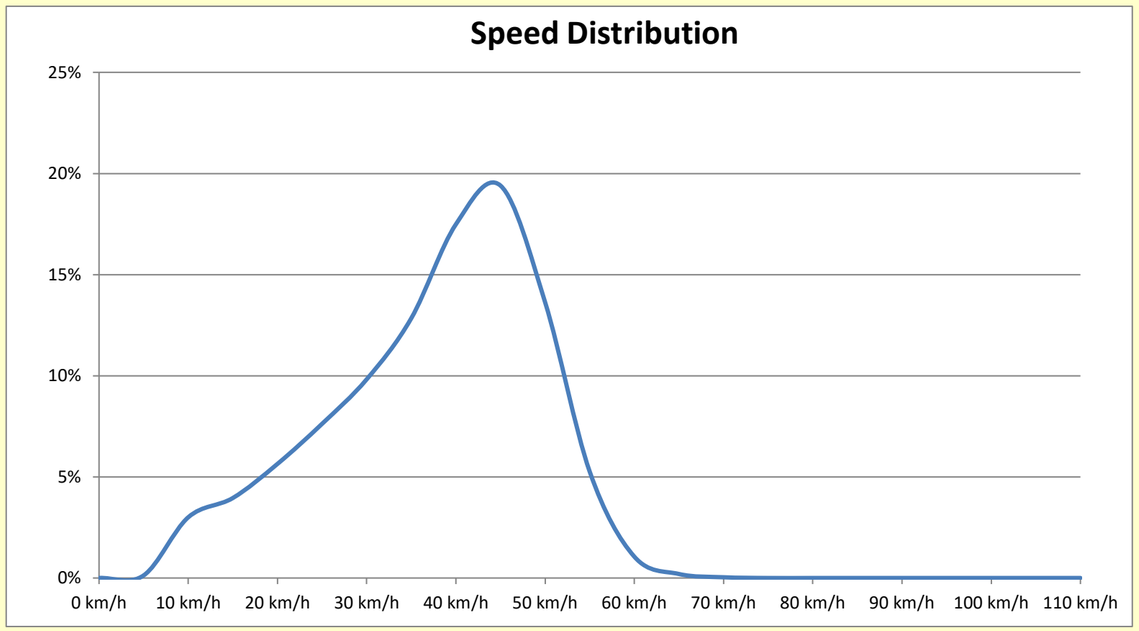
Ave Traffic Composition	
Cars	80.22%
Trucks	13.14%
Heavy Trucks	6.64%

Ave Speed Data	
85% P'tile	49.5 km/h
Mean Speed	43.7 km/h
Min. Speed	1.2 km/h
Max. Speed	72.9 km/h
Deviation	6.2 km/h

Suggestive Speed Zone
50 km/h

5km/h Speed Bin	
> 0 km/h	100.07%
> 5 km/h	100.07%
> 10 km/h	99.94%
> 15 km/h	96.94%
> 20 km/h	92.99%
> 25 km/h	87.35%
> 30 km/h	79.73%
> 35 km/h	69.90%
> 40 km/h	57.06%
> 45 km/h	39.58%
> 50 km/h	20.18%
> 55 km/h	6.55%
> 60 km/h	1.29%
> 65 km/h	0.23%
> 70 km/h	0.04%
> 75 km/h	0.00%
> 80 km/h	0.00%
> 85 km/h	0.00%
> 90 km/h	0.00%
> 95 km/h	0.00%
> 100 km/h	0.00%
> 105 km/h	0.00%
> 110 km/h	0.00%

Speed Range Distribution (5km/h bin)	
> 0 km/h & ≤ 5 km/h	0.00%
> 5 km/h & ≤ 10 km/h	0.13%
> 10 km/h & ≤ 15 km/h	3.00%
> 15 km/h & ≤ 20 km/h	3.95%
> 20 km/h & ≤ 25 km/h	5.64%
> 25 km/h & ≤ 30 km/h	7.62%
> 30 km/h & ≤ 35 km/h	9.82%
> 35 km/h & ≤ 40 km/h	12.84%
> 40 km/h & ≤ 45 km/h	17.49%
> 45 km/h & ≤ 50 km/h	19.40%
> 50 km/h & ≤ 55 km/h	13.63%
> 55 km/h & ≤ 60 km/h	5.26%
> 60 km/h & ≤ 65 km/h	1.06%
> 65 km/h & ≤ 70 km/h	0.20%
> 70 km/h & ≤ 75 km/h	0.04%
> 75 km/h & ≤ 80 km/h	0.00%
> 80 km/h & ≤ 85 km/h	0.00%
> 85 km/h & ≤ 90 km/h	0.00%
> 90 km/h & ≤ 95 km/h	0.00%
> 95 km/h & ≤ 100 km/h	0.00%
> 100 km/h & ≤ 105 km/h	0.00%
> 105 km/h & ≤ 110 km/h	0.00%
> 110 km/h	0.00%



TRANS TRAFFIC SURVEY
trafficsurvey.com.au

Site Pacific Hwy NB

Direction Both directions

Back to Site Summary Page

Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	7 days		Weekday		Weekend	
Date	25/03/2024	26/03/2024	27/03/2024	28/03/2024	22/03/2024	23/03/2024	24/03/2024	Total	Average	Total	Average	Total	Average
AM Peak	08:00	08:00	08:00	08:00	08:00	11:00	11:00	N/A	10:00	N/A	08:00	N/A	11:00
PM Peak	17:00	16:00	17:00	15:00	17:00	12:00	12:00	N/A	17:00	N/A	17:00	N/A	12:00
00:00	58	65	57	54	61	99	138	532	76	295	59	237	119
01:00	36	36	41	38	38	64	78	331	47	189	38	142	72
02:00	29	27	27	38	30	44	56	251	36	151	30	100	51
03:00	38	40	43	40	40	26	47	274	39	201	41	73	37
04:00	72	82	69	80	70	53	32	458	65	373	75	85	43
05:00	200	200	208	220	193	101	50	1172	167	1021	204	151	76
06:00	410	421	454	418	394	211	115	2423	346	2097	420	326	164
07:00	707	749	720	754	674	320	177	4101	586	3604	721	497	249
08:00	884	909	964	900	853	527	267	5304	758	4510	902	794	397
09:00	812	847	804	852	808	693	401	5217	745	4123	825	1094	548
10:00	824	828	824	879	818	775	541	5489	784	4173	834	1316	659
11:00	774	789	745	839	772	827	674	5420	774	3919	784	1501	751
12:00	767	755	768	808	778	783	685	5344	763	3876	775	1468	735
13:00	810	769	818	872	820	721	537	5347	764	4089	817	1258	629
14:00	756	739	728	855	758	703	549	5088	727	3836	767	1252	626
15:00	848	871	845	880	844	758	530	5576	797	4288	858	1288	645
16:00	841	946	893	735	832	718	553	5518	788	4247	850	1271	636
17:00	876	922	909	871	860	695	531	5664	809	4438	888	1226	614
18:00	807	746	884	853	790	599	477	5156	737	4080	816	1076	538
19:00	601	584	605	656	591	478	439	3954	565	3037	608	917	459
20:00	461	433	469	516	454	397	362	3092	441	2333	467	759	380
21:00	384	365	335	474	379	409	310	2656	380	1937	388	719	360
22:00	264	225	232	355	264	302	279	1921	274	1340	268	581	291
23:00	134	107	119	191	136	194	147	1028	147	687	138	341	171
Total	12393	12455	12561	13178	12257	10497	7975	81316	11615	62844	12573	18472	9250
% Heavy	20.45%	20.76%	21.85%	21.42%	20.33%	17.02%	14.63%	19.84%		20.97%		15.99%	

Mary Garland
Team Leader,
Transport and Water Assessments

Department of Planning and Environment

19 March 2024
Ref: 3023.33

PROPOSED DIGITAL SIGNAGE – PACIFIC HIGHWAY, HORNSBY

CONSULTANT ADVICE LETTER

Mary,

Our expertise lies in the field of designing architectural lighting installations and assessing the resulting impact of light on people and environments. Over the last 7 years Electrolight Australia has developed a sub specialisation involving the assessment of the impact of digital signage on residents and motorists. This has led us to undertake over 500 separate lighting impact assessments for digital signage around the country, as well as consult with road authorities, councils, Australian standard committees and tribunals on how best to frame and apply their guidelines for digital signage. To the best of our knowledge, Electrolight Australia has undertaken more lighting impact assessments for digital signage than any other organisation in Australia. This gives us a unique appreciation of the complexities associated with the lighting impact of digital signage and their use in the urban environment.

We have been asked to respond to Item 6 in Attachment A of the request for information letter dated 12th March 2024. The request asks for a response in relation to Schedule 5 Clause 7 "Illumination" of State Environmental Planning Policy (Industry and Employment) 2021. To assist we have collated the relevant information from the Lighting Impact Assessment (LIA) into the compliance table below:

SCHEDULE 5 ASSESSMENT CRITERIA – 7. ILLUMINATION		
Assessment Criteria	Response	Compliant?
Would illumination result in unacceptable glare?	The proposed signage complies with the Luminance limits of AS4282, demonstrating that the illumination will not cause unacceptable glare.	Yes
Would illumination affect safety for pedestrians, vehicles or aircraft?	The proposed signage complies with the Threshold Increment limits of AS4282, demonstrating that the illumination will not cause unacceptable glare. The calculation results in the LIA Report show that the Threshold Increment does not exceed 2.50% for any traffic approach (the allowable maximum under the standard is 20%). In addition, the small size of the signage and its relatively low luminance limits the risk to pedestrians, vehicles or aircraft.	Yes
Would illumination detract from the amenity of any residence or other form of accommodation?	The proposed signage, when installed according to the LIA report, complies with the illuminance (spill lighting) limits of AS4282, demonstrating that the illumination will not detract from the amenity of any residence or other form of accommodation.	Yes
Can the intensity of the illumination be adjusted, if necessary?	The proposed signage is dimmable and when designed according to this report, includes a light sensor that automatically adjusts the brightness of the advertising display to prevailing light conditions.	Yes

Electrolight Australia Pty Ltd
ABN: 44 600 067 392

info@electrolight.com
www.electrolight.com

4/414 Bourke St
Surry Hills NSW 2010
T + 612 9267 4777

Is the illumination subject to a curfew?	The proposed advertising signage, when installed according to this report, complies with the limits required during curfewed operation under AS4282 (nominally between the hours of 11pm and 6am). This means that a curfew is not required.	N/A

M.Des.Sc (Illumination) B.Elec.Eng (Hons)

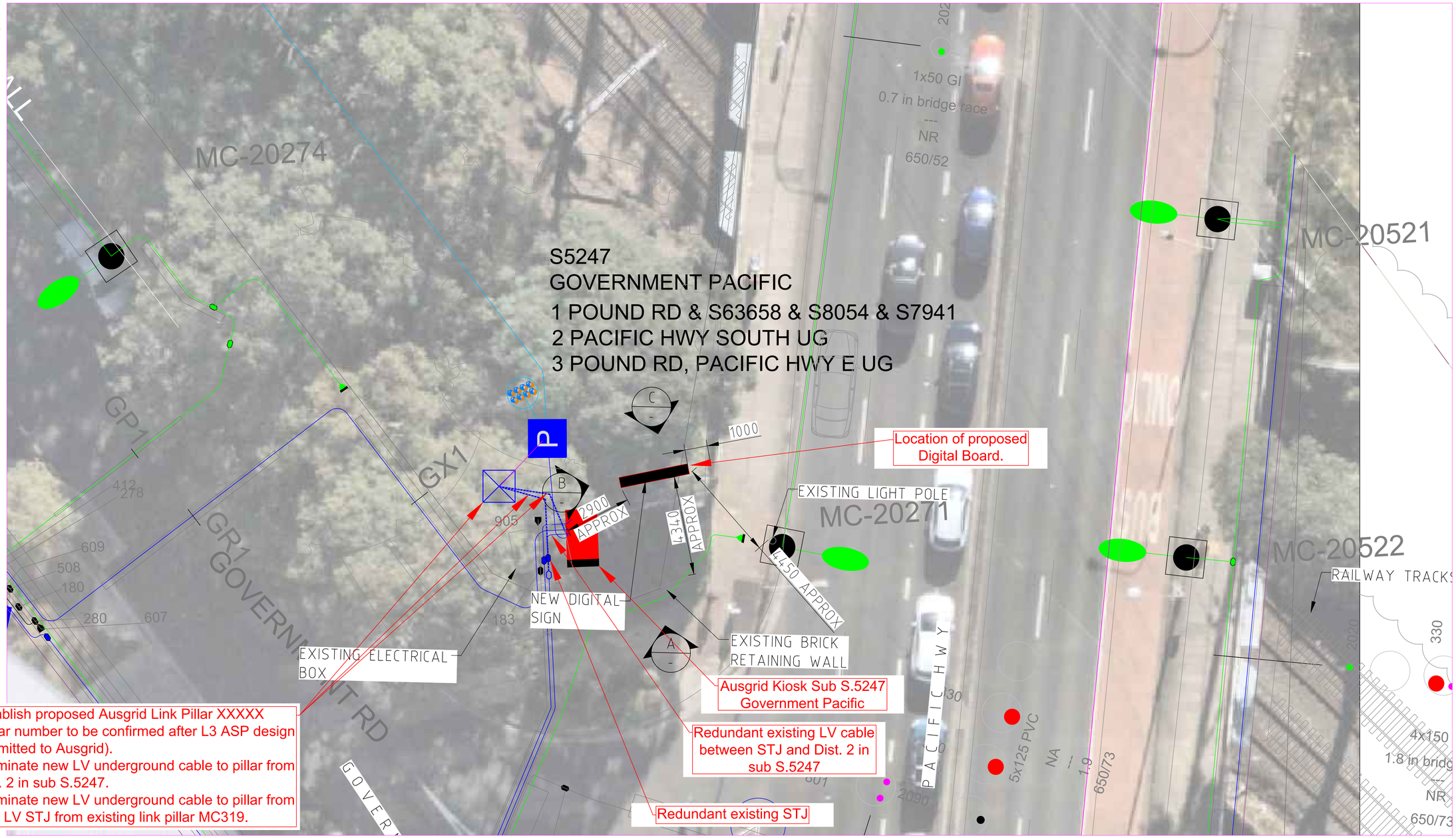
Registered Professional Engineer - New South Wales (PRE0000868)

Member of the Illuminating Engineering Society of Australia and New Zealand (MIES)

Ryan Shamier

Electrolight Australia

NORTH POINT



- Establish proposed Ausgrid Link Pillar XXXXX (Pillar number to be confirmed after L3 ASP design submitted to Ausgrid).
- Terminate new LV underground cable to pillar from Dist. 2 in sub S.5247.
- Terminate new LV underground cable to pillar from new LV STJ from existing link pillar MC319.

WARNING

- THIS DESIGN CANNOT BE USED FOR CONSTRUCTION PURPOSES UNTIL THE LOCATION OF ALL EXISTING SERVICES IS VERIFIED.
- THE INFORMATION PROVIDED IN THIS DESIGN MUST BE CHECKED ON SITE AND THE MOST CURRENT INFORMATION ON THE CONFIGURATION OF ALL SERVICES, INCLUDING AUSGRID'S NETWORK, MUST BE VERIFIED IMMEDIATELY BEFORE CONSTRUCTION COMMENCES BY CONTACTING BEFORE YOU DIG AUSTRALIA (BYDA) AT WWW.BYDA.COM.AU
- BYDA INFORMATION MUST BE CURRENT, AS INDICATED BY THE VALIDITY DATES ON THE BYDA INFORMATION, AT THE TIME OF CONSTRUCTION.

CONCEPT PLAN

SCALE 1 : 100

0 2 4 6 8 10 METRES

CHECK FOR OTHER SERVICES BEFORE BORING OR EXCAVATION

PACIFIC HIGHWAY, HORNSBY
SYDNEY TRAINS

CAD DRAWING DO NOT MANUALLY EDIT
AMENDMENTS

ASSOCIATED DRAWINGS

Replace this text in Block
MY_LOGO with Company
Logo and Company Address,
Phone and Project Details.

ASP REF. ASP Quality File Reference

CERTIFICATION NUMBER ##-##

DESIGNED BY
AUTH NO.
SUBMIT DATE SUBMITTED __/__/__
LGA
AUSGRID REF. AUSGRID MAP REF.

Title 1
Title 2
Title 3
Title 4
Title 5

SIZE A1 | AUSGRID PROJECT No. | SHEETS 1 of 2 | AMD.

08/02/2024

NORTH POINT

PROPOSED ISOLATION PADMOUNT TRANSFORMER

PROPOSED DSMSB

PROPOSED DISTRIBUTION BOARD

PROPOSED METER PANEL

PROPOSED AUSGRID LV NETWORK PILLAR

PROPOSED DIGITAL SIGN BOARD

EXISTING LIGHT POLE MC-20271

NEW DIGITAL SIGN

Ausgrid Kiosk Sub S.5247
Government Pacific

C

B

1000

2900 APPROX

4340 APPROX

4450 APPROX

LV

CONCEPT PLAN

SCALE 1 : 100

0 2 4 6 8 10 METRES

WARNING

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CHECK FOR OTHER SERVICES BEFORE BORING OR EXCAVATION

PACIFIC HIGHWAY, HORNSBY
SYDNEY TRAINS

CAD DRAWING DO NOT MANUALLY AMEND
AMENDMENTS

ASSOCIATED DRAWINGS

Replace this text in Block
MY_LOGO with Company
Logo and Company Address,
Phone and Project Details.

ASP REF. ASP Quality File Reference

CERTIFICATION NUMBER ##-##

DESIGNED BY
AUTH NO.
SUBMIT DATE SUBMITTED __/__/___
LGA
AUSGRID REF. AUSGRID MAP REF.

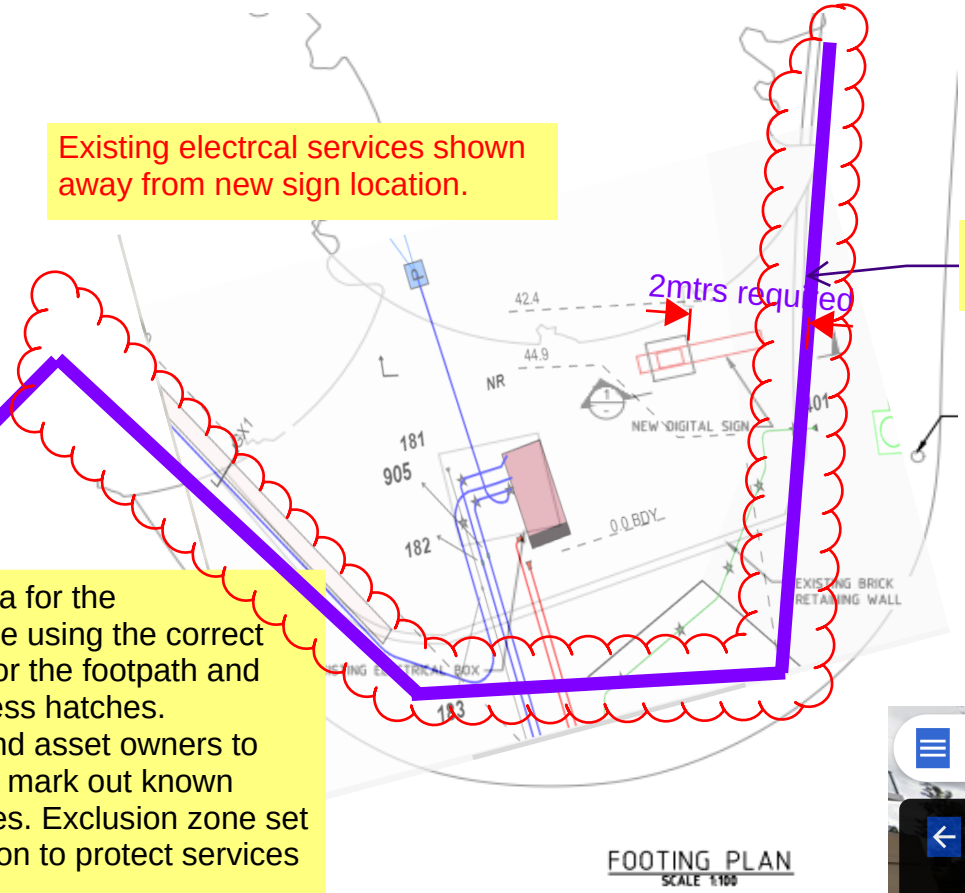
Title 1
Title 2
Title 3
Title 4
Title 5

SIZE A1 | AUSGRID PROJECT No. | SHEETS 2 of 2 | AMD.

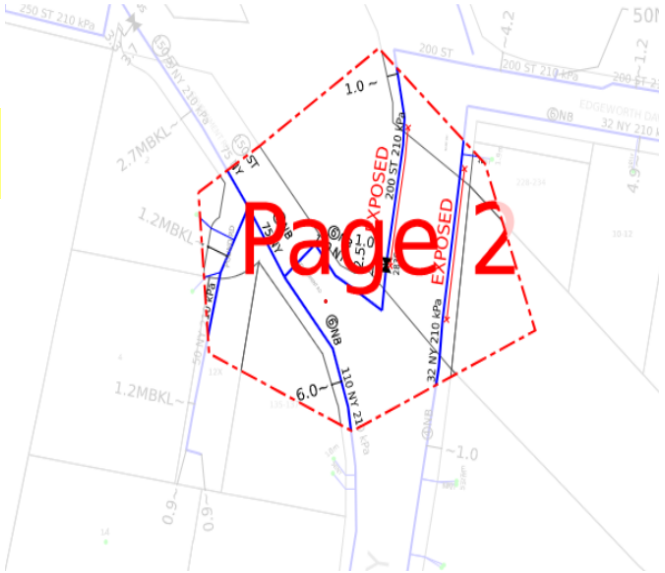
08/02/2024

Hornsby - Digital Advertising

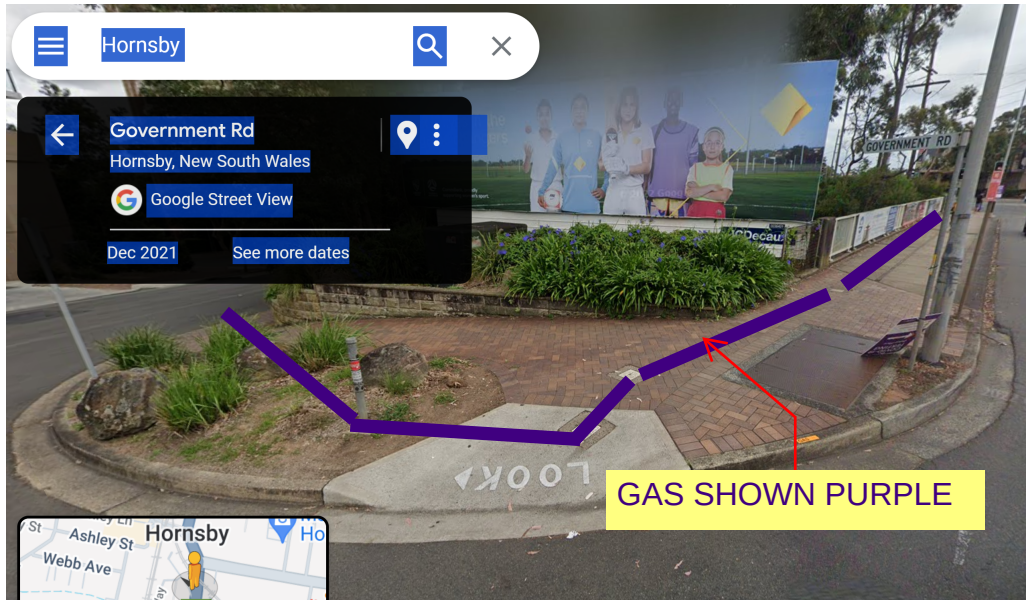
Existing electrcal services shown away from new sign location.



Gas line map



1. Access to the area for the removal/install will be using the correct weighted machine for the footpath and remain clear of access hatches.
2. Service locator and asset owners to attend site prior and mark out known underground services. Exclusion zone set up during construction to protect services if required.
3. Jemena gas secondary field officer to be notified and attend site to determine that new footing excavation is 2mtrs away and provide site instruction. (Gas shown in purple)
4. Ausgrid to be notifeid and attend site regarding excavation works and provide site instruction prior to commencement of works.



Transport for NSW

8 December 2023

TfNSW Reference: SYD23/00174/02
DPE Reference: PAN-381735 DA 23/14504 (CNR-62392)

Ms Kiersten Fishburn
Secretary
Department of Planning and Environment
Locked Bag 5022
PARRAMATTA NSW 2124

Attention: Chris Fraser

CONSTRUCT DIGITAL ADVERTISING SIGNAGE ON OVERHEAD RAILWAY
SYDNEY PARK ROAD, ERSKINEVILLE

Dear Ms Fishburn,

Reference is made to the Department's correspondence regarding the abovementioned application which was referred to Transport for NSW (**TfNSW**) for comment.

TfNSW has reviewed the submitted application and provides the following advisory comments to assist the Department in its determination of the application:

1. The proposed design and operation of the sign shall be in accordance with the Transport Corridor Outdoor Advertising and Signage Guidelines 2017 (**Guidelines)** requirements.

2. The images displayed on the sign must not contain/use:
   - Flashing or flickering lights or content.
   - Animated displays, moving parts or simulated movement.
   - Complex displays including text and information that hold a driver's attention beyond "glance appreciation".
   - Displays resembling traffic control devices by use of colour, shape or words that can be construed as giving instruction to traffic for example, red, amber or green circles, octagons, crosses, triangles and words such as 'stop' or 'halt'.
   - A method of illumination that distracts or dazzles.
   - Dominant use of colours red or green.

3. Dwell times between displays shall be no shorter than 10 seconds.

4. A Road Occupancy Licence (**ROL**) should be obtained from Transport Management Centre for any works that may impact on traffic flows on the subject section of Sydney Park Road or Princes Highway / King Street during construction activities. A ROL can be obtained through https://myrta.com/oplinc2/pages/security/oplincLogin.jsf.

Should you have any further inquiries in relation to this matter, please contact Matthew Houlden by email at development.sydney@transport.nsw.gov.au.

Yours sincerely,

Rachel Davis
Senior Land Use Planner
Land Use Assessment Eastern
Planning and Programs, Greater Sydney Division

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PO Box 973 Parramatta CBD NSW 2124
W transport.nsw.gov.au