Woodville Road, Granville
Digital Signage Safety Assessment

Prepared for:

Ethos Urban

17 December 2020

The Transport Planning Partnership

Woodville Road, Granville

Digital Signage Safety Assessment

Client: Ethos Urban

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Quality Record

Version	Date	Prepared by	Reviewed by	Approved by	Signature
V01	15/12/20	Santi Botross	Wayne Johnson	Wayne Johnson	
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1 Introduction

1.1 Overview

Sydney Trains is seeking approval for the installation of a LED digital illuminated sign on an existing overhead rail bridge above Woodville Road in Granville. The proposed signage is to be located on both sides of the rail bridge, facing northbound and southbound travel lanes on Woodville Road.

Transport for NSW (TfNSW), formerly Roads and Maritime Services require a signage safety assessment to be completed for the proposed signage.

The Transport Planning Partnership (TTPP) has been commissioned by Ethos Urban, on behalf of Sydney Trains, 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 No. 64 – Advertising and Signage (SEPP 64). The Guidelines outline best practice for the planning and design of outdoor advertisements in transport corridors. The SEPP 64 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 digital signage 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 signage above Woodville Road in Granville.

The following items have been considered in this report:

- Potential for the signage to obstruct or distract a driver's view of the road, traffic control devices, and signalised mid-block pedestrian crossing.
- Distance from upstream or downstream intersections or other decision points, such as merge points and diverging points.
- Potential for the signage to distract at a critical time 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 signage location from a driving viewpoint along Woodville Road carried out on Monday 30 November 2020.
- 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 No. 64 - Advertising and Signage (SEPP 64).
- Design plans of the proposed digital signage dated 20/10/2020.

2 Proposal Description

2.1 Location Details

A new digital signage is proposed to be installed off the side of the overhead rail bridge across Woodville Road in Granville. Technically speaking, there are two separate rail bridges situated at different levels at this location (as can be seen in on-site photographs and the designer's impression contained in Section 2.3). However, for ease, this report refers to a single rail bridge. This has no impact on detailing and assessing the proposed digital signage.

The proposed digital sign boards will be situated on the northern and southern façade of the rail bridge. Currently, there are no sign boards placed on the rail bridge.

Woodville Road has a straight road alignment on the south approach. On the north approach, there is a horizontal curve in the road alignment where Woodville Road intersects with Parramatta Road and the M4 Motorway on-ramp. The proposed location of the sign is within a 60 km/h speed zone.

In the vicinity of the proposed signage, Woodville Road has three travel lanes in each direction. North of the rail bridge is the signalised intersection of Woodville Road with Crescent Street.

An aerial image of the signage location and surrounding environs are shown in Figure 2.1.

Figure 2.1: Signage Location

Basemap source: Nearmap, aerial imagery dated 02 October 2020

2.2 Description of Proposed Signage

The signage board on the northern façade will have a length of 12.58 m and a height of 3.95m, and a visual screen with a length of 12.48 m and a height if 3.2 m (39.9 m^2 area).

The signage board on the southern façade will have a length of 15.5 m and a height of 3.3 m, and a visual screen with a length of 12.4 m and a height of 3.2 m (39.7 m^2 area).

Both screens would be set upon a black cladding which will visually appear as a plain border around the visual screen. The base of the signage board will be slightly elevated in comparison to the base of the rail bridge. Thus, the current 4.4 m vertical clearance on both sides of the rail bridge would be maintained.

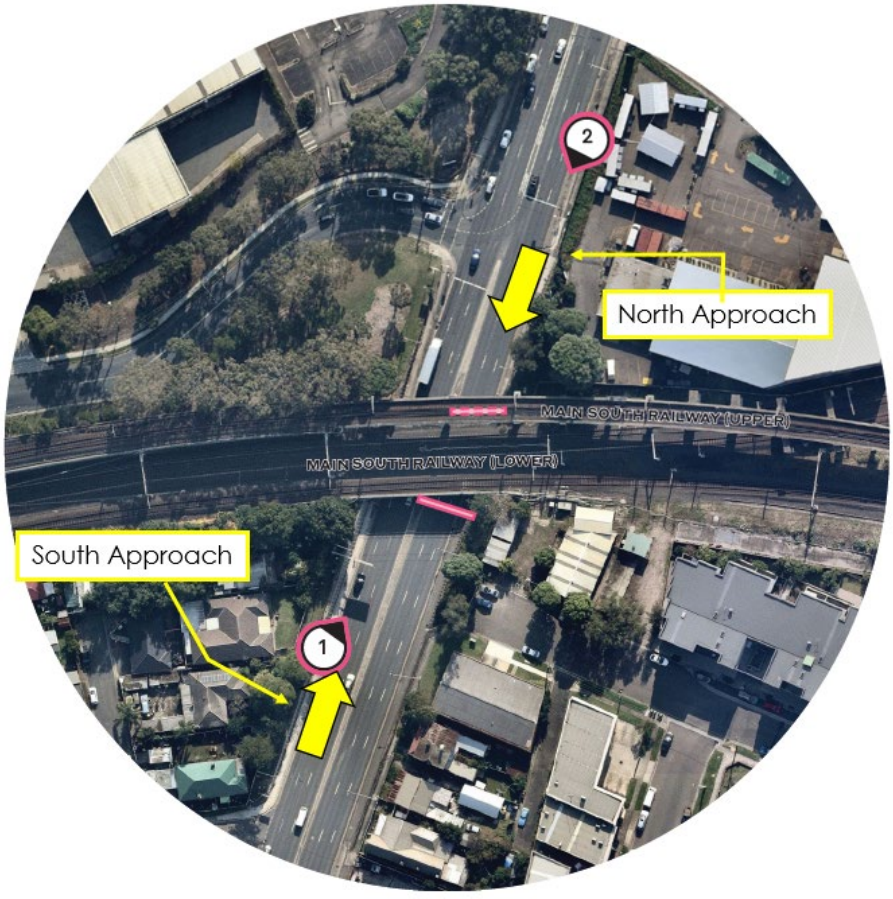
The digital signage with LED panel will be installed on both sides of the rail bridge which face the northbound and southbound travel lanes on Woodville Road. The proposed digital

signage will be used for promoting Sydney Trains and its sponsors, and third-party advertising. The digital signage will contain text and images.

2.3 Signage Exposure

The proposed digital signage would be visible to traffic travelling on Woodville Road on the north approach and south approach, as shown in Figure 2.2. A site visit was undertaken on Monday 30 November 2020 to inspect driver sight distances on both approaches to the proposed signage location and observe any potential crash hazards likely to result from the proposed digital signage. A description of the site investigation findings is provided herein.

Figure 2.2: Woodville Road Approaches



2.3.1 Woodville Road North Approach

The lane configuration on Woodville Road north approach in the vicinity of the proposed signage is shown in Figure 2.3. There are three travel lanes on approach to the proposed signage location.

Figure 2.3: Woodville Road North Approach Lane Configuration

Source: Photograph taken by TTPP on 30/11/2020

- The north facing digital signage would be visible to motorists and cyclists on Woodville Road travelling southbound.
- Notably, this section of Woodville Road intersects with Parramatta Road and the M4 Motorway on-ramp and off-ramp. Therefore, this area carries a high volume of traffic across the majority of the day. Furthermore, the area is industrial in nature and hence there is a high volume of trucks. As observed during multiple drive through recordings during the site inspection, driver visibility towards the signage would be impeded by trucks travelling in adjacent lanes or those travelling in the opposing direction. Treating the observed conditions during the site inspection as the typical conditions in the area, the digital signage would likely be visible in traffic lanes as follows:
  - In Lane 1 (through lane), 165 m from the sign on the north approach.
  - In Lane 2 (through lane), 165 m from the sign on the north approach.
  - In Lane 3 (through lane), 210 m from the sign on the north approach.
- The likely readable distance would be 110 m across all three lanes, where there are no vehicles travelling in adjacent lanes or opposing lanes which could impede driver visibility to the signage. There is no existing signage at this location, and therefore, the

readable distance is based on the text font and sizing which is displayed in the designer's impression as shown in Figure 2.4.

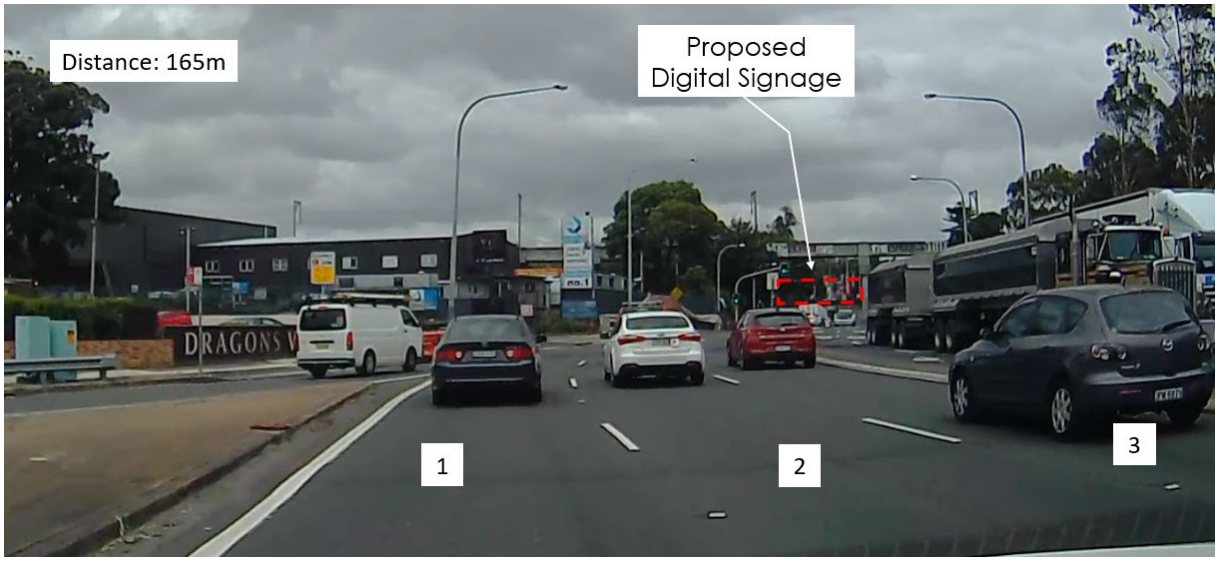
- In all lanes, the digital signage would become out of driving view approximately 10 m north of the proposed signage.

Figure 2.4 shows the perspective of the designer's impression of the concept design at the proposed signage location. Likely visible distances on Woodville Road north approach are shown in Figure 2.5 to Figure 2.7.

Figure 2.4: Designer's Impression on North Approach

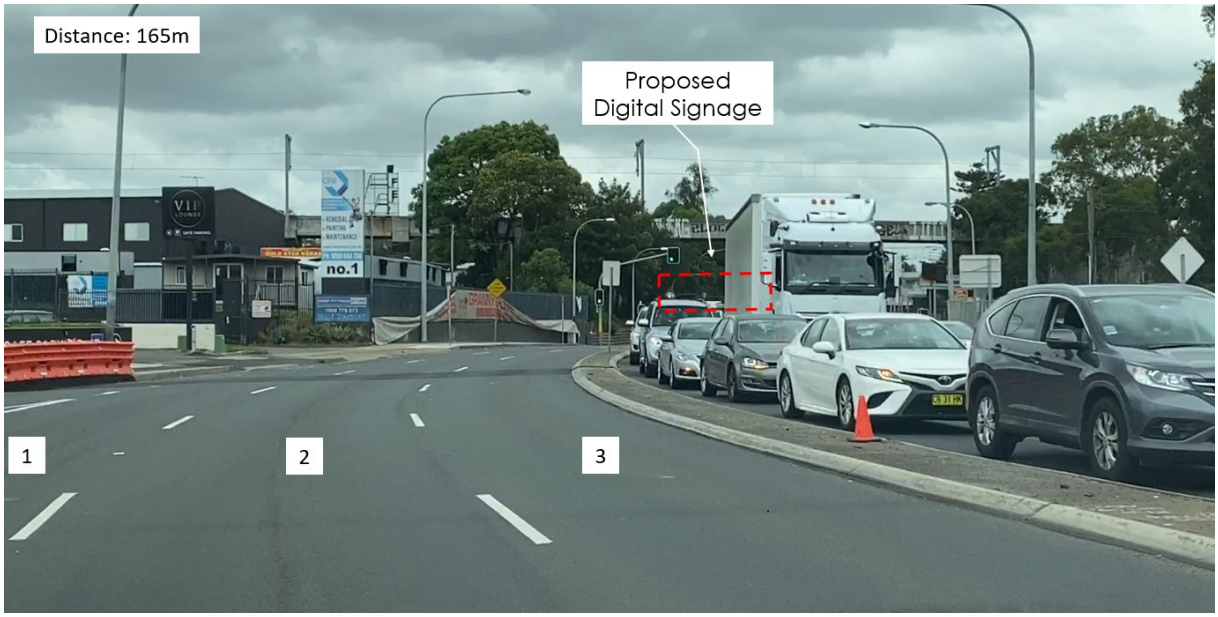
Source: Ethos Urban Pty Ltd dated 20/10/2020

Figure 2.5: North Approach Signage Exposure – Lane 1



Source: Photograph taken by TTPP dated 30/11/2020

Figure 2.6: North Approach Signage Exposure – Lane 2



Source: Photograph taken by TTPP dated 30/11/2020

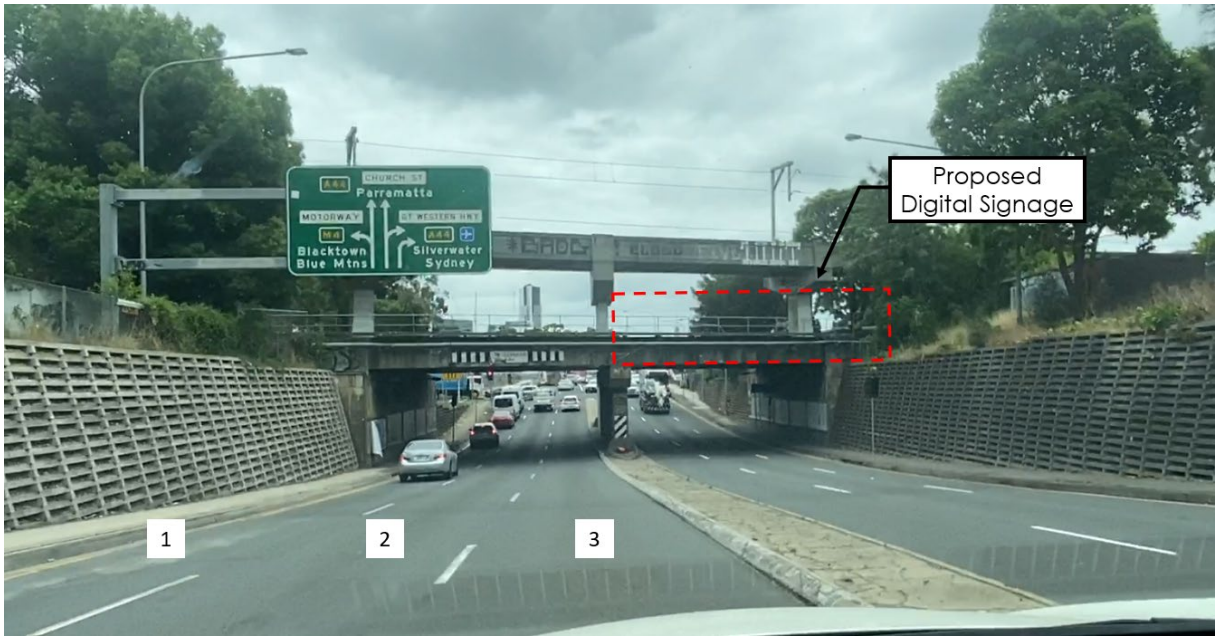
Figure 2.7: North Approach Signage Exposure – Lane 3

Source: Photograph taken by TTPP dated 30/11/2020

2.3.2 Woodville Road South Approach

The lane configuration on the Woodville Road south approach in the vicinity of the proposed signage location is shown in Figure 2.8. Travel lanes are numbered 1 to 3 starting from the kerbside lane.

Figure 2.8: Woodville Road South Approach Lane Configuration



Source: Photograph taken by TTPP on 30/11/2020

- The south facing digital signage would be visible to motorists on Woodville Road travelling northbound.
- As mentioned for the north approach, this section of Woodville Road intersects with Parramatta Road and the M4 Motorway on-ramp and off-ramp. Therefore, this area carries a high volume of traffic across the majority of the day. Furthermore, the area is industrial in nature and hence there is a high volume of trucks.

During the site inspection, multiple drive through recordings were undertaken; in some cases, there was surrounding traffic, and at other times there was no surrounding traffic. In cases where there was surrounding traffic, driver visibility to the signage would be impeded by other vehicles. There is not one "typical" condition for this approach that was observed during the site inspection. Therefore, the visible distance has been recorded under both traffic conditions. As such, the digital signage would likely be visible in traffic lanes as follows:

- In congested traffic conditions: The digital signage would likely be visible in all three traffic lanes at a distance of 90 m from the sign on the south approach.
- In non-congested traffic conditions: The digital signage would likely be visible in all three traffic lanes at a distance of 175 m from the sign on the south approach.

- The likely readable distance would be 140 m across all three lanes in non-congested traffic conditions. There is no existing signage at this location, and therefore, the readable distance is based on the text font and sizing which is displayed in the designer's impression as shown in Figure 2.9.
- In all lanes, the digital signage would become out of driving view approximately 10 m south of the proposed signage.

Figure 2.9 illustrates a perspective of the designer's impression of the concept design at the proposed signage location. Concept plans are provided in Appendix A. Likely visible distances on Woodville Road south approach are shown in Figure 2.10 to Figure 2.12.

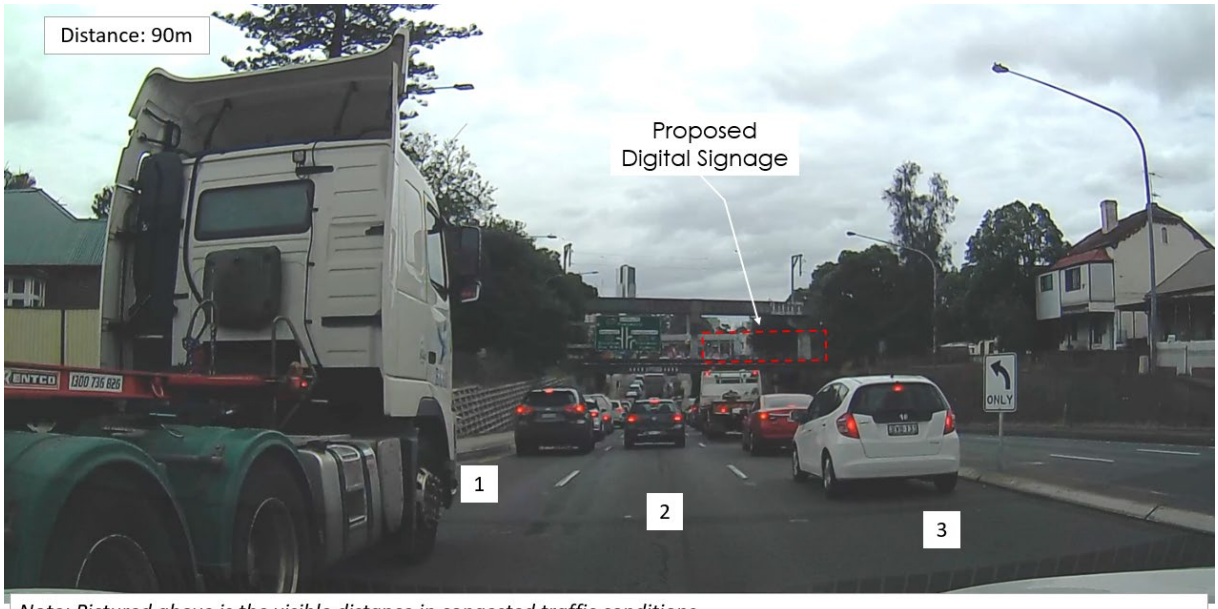
Figure 2.9: Designer's Impression on South Approach

Source: Ethos Urban Pty Ltd dated 20/10/2020

Figure 2.10: South Approach Signage Exposure – Lane 1

Source: Photograph taken by TTPP on 30/11/2020

Figure 2.11: South Approach Signage Exposure – Lane 2



Note: Pictured above is the visible distance in congested traffic conditions.

Note: Pictured above is the driving view at 185 m from signage in congested traffic conditions. Signage would not be visible.

Source: Photograph taken by TTPP on 30/11/2020

Figure 2.12: South Approach Signage Exposure – Lane 3

Source: Photograph taken by TTPP on 30/11/2020

2.4 Crash History

Historic crash data has been obtained from Transport for NSW (TfNSW) and assessed for incidents on Woodville Road within the viewable distance of the proposed signage location. Based on site observations (as detailed in Section 2.3), the proposed signage location is visible from a distance of approximately 210 m and 175 m away on the Woodville Road north approach and south approach, respectively.

Crash history data has been assessed on both approaches to the proposed signage location between 1 April 2015 to 31 March 2020 (5-year finalised data). A summary of the crashes in the vicinity of the proposed digital signage is presented in Table 2.1. The location of reported incidents is shown in Figure 2.13.

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)
North Approach	Rear End (RUM CODE 30)		2		5	5
	Right Turn Sideswipe (RUM CODE 36)			1		
	Other Same Direction (RUM CODE 39)					3
	Cross Traffic (RUM CODE 10)					1
	Emerging from Driveway (RUM CODE 47)					1
	Lane Change Left (RUM CODE 35)				1	
Sub-total		**0**	**2**	**1**	**6**	**10**
South Approach	Rear End (RUM CODE 30)				1	3
	Lane Sideswipe (RUM CODE 33)					1
	Right Through (RUM CODE 21)		1	7		1
	Right Turn Sideswipe (RUM CODE 36)					1
Sub-total		**0**	**1**	**7**	**1**	**6**
Total		**0**	**4**	**9**	**7**	**16**

Source: Transport for NSW

Figure 2.13: Crash Locations in Recent 5-Year Period

Source: Transport for NSW

Parramatta Road intersects with Woodville Road, and the M4 Motorway has an exit point at Church Street which are both closely situated to Woodville Road near the proposed digital signage location. Parramatta Road, also known as the A44, and the M4 Motorway are both major east-west connections between Western Sydney and Sydney CBD.

At the southern end of Woodville Road is the Hume Highway, which is another major east-west route linking South-Western Sydney and Sydney CBD. Woodville Road provides the north-south connection between Parramatta Road and the M4 Motorway with Hume Highway.

According to Average Annual Daily Traffic (AADT) provided by Roads and Maritime, in 2019 (pre COVID-19) the average daily traffic count on Parramatta Road, near James Ruse Drive, was in the order of 65,000 vehicles travelling in two directions. The AADT on Hume Highway, near Woodville Road, was in the order of 51,000 vehicles per day. NSW Toll Road data provided by TransUrban indicates the AADT in 2019 at the M4 Motorway Church Street toll point carried in the order of 108,500 vehicles travelling in two directions.

Woodville Road, and intersecting major roads, carry a high volume of traffic. Therefore, it is expected that there would be some crash incidents recorded along the route. The majority of crashes which have occurred within the visible distance of the digital signage have a severity rating between moderate - minor or resulted in no injury with the vehicle being towed-away; that is, 32 out of 36 crashes.

There were three crashes which resulted in a serious injury within the visible distance. Of these incidents, two crashes occurred at the intersection of Woodville Road with Parramatta Road and the M4 westbound on-ramp. Both crashes were recorded as rear-end type crashes (RUM CODE 30). The third crash occurred at the intersection of Woodville Road with Crescent Street. This crash involved a vehicle travelling south turning right from Woodville Road to Crescent Street, which collided with a vehicle travelling north on Woodville Road (RUM CODE 21).

The most common incident to occur in the vicinity of the proposed signage is a rear-end crash type (RUM CODE 30) i.e. 16 out of 36 crashes.

In the past five years, there were no crashes which resulted in a fatality.

3 Statutory Requirements

This section of the report assesses the compliance with the road safety assessment criteria established in the NSW Guidelines and State Environmental Planning Policy (SEPP) 64 requires analysis as to whether the proposal will 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 above key road safety assessment criteria, a series of detailed criteria are set out in Section 3, *Advertisements and Road Safety* of the NSW Guidelines.

3.1 Sign Location Criteria

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 digital signage will not physically obstruct any vehicle, pedestrian and cyclist movements as it will be placed on the side of the rail bridge directly above Woodville Road. The digital signage will not protrude below the underside of the rail bridge, and hence the vertical clearance will be maintained as per existing conditions.

The concept design for the proposed signage and its positioning on the sides of the rail bridge are shown in Appendix A.

(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 supplements) or behind an RMS-approved crash barrier.

The digital sign boards will be installed on both sides of the rail bridge which is positioned above the carriageway and outside of the clear zone. Hence, it would not require an RMS-approved crash barrier.

(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.

The digital sign boards will not be located within the clear zone.

A minimum vertical clearance of 4.4 m will be maintained as per the existing conditions.

(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 proposed signage will 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.

3.1.2 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.

Based on TfNSW's Cycleway Finder map, an off-road cycle facility (shared path) is provided on the east side and west side of Woodville Road.

The proposed signage would not obstruct a pedestrian's or cyclist's view of the road when on the shared path.

Further, the proposed signage would not obstruct a cyclist's view of the road when cycling on the road.

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

The proposed digital signage will not obstruct pedestrian and cyclist's view of Woodville Road when on the street level.

(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 signage will be positioned at the same height as the existing rail bridge which would not impede a driver's visibility on the alignment of the road. The digital signage would not

indicate misleading information or information contrary to the existing roadway. This is supported by the designer's impression of the proposed signage as depicted in Figure 2.4 and Figure 2.9.

(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 signage would be located within a driver's line of sight for the north approach and south approach on Woodville Road with visible distances of 210 m and 175 m, respectively. In addition, the digital signage would be placed above the road therefore, a driver would not be required to turn away from the road in order to view the digital signage.

The north facing digital signage would be visible from Crescent Street west approach. It would be visible to a driver that is waiting at a red traffic signal at the intersection of Crescent Street – Woodville Road. The driver's view of the digital signage from Lane 2 on Crescent Street is shown in Figure 3.4.

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

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.

For the purpose of this assessment, an operating speed of 60 km/h has been used to calculate the minimum SSD. A 60 km/h speed has been adopted based on the signposted speed limit on Woodville Road (being 60 km/h) as well as the speed limit which motorists were

observed to be driving during the site inspection. According to Austroads, the minimum safe stopping sight distance for a 60 km/h speed zone is 64 m.

Where there is a slope on the approach, the Guidelines specifies a grade correction factor be applied. The grade adopted is taken as the average grade over the braking length. Using the formula for calculating SSD (provided in Section 5.3 of Austroads Guide to Road Design Part 3: Geometric Design), the braking length is calculated as 39 m on both approaches.

Based on Nearmap, and checked by the intersection Traffic Control Signal plan, there is a 2% decline on the north approach and 6% incline on the south approach towards the traffic signals. In this case, a correction to the SSD has been applied as follows:

- North approach: correction of 2 m added to 64 m safe sight distance.
- South approach: correction of 6 m subtracted from the 64 m safe sight distance.

The guidelines also state that the corrected SSD should be rounded to the nearest 5 m. Therefore, the safe sight distance becomes:

- 70 m on the north approach.
- 60 m on the south approach.

The safe stopping distance is illustrated in Figure 3.1.

Based on the above, the proposed signage would not be located within the safe stopping distance on the north approach.

On the south approach, the proposed signage would be located within the safe stopping distance of the intersection. However, at the 60 m mark, the digital signage would be out of driving view as shown in Figure 3.2. As such, motorists would not observe the digital advertising sign within the safe stopping distance of the signalised intersection on the Woodville Road south approach. In this regard, motorists would have sufficient reaction and braking time to stop safely on approach to the signalised intersection.

Figure 3.1: Safe Stopping Sight Distance

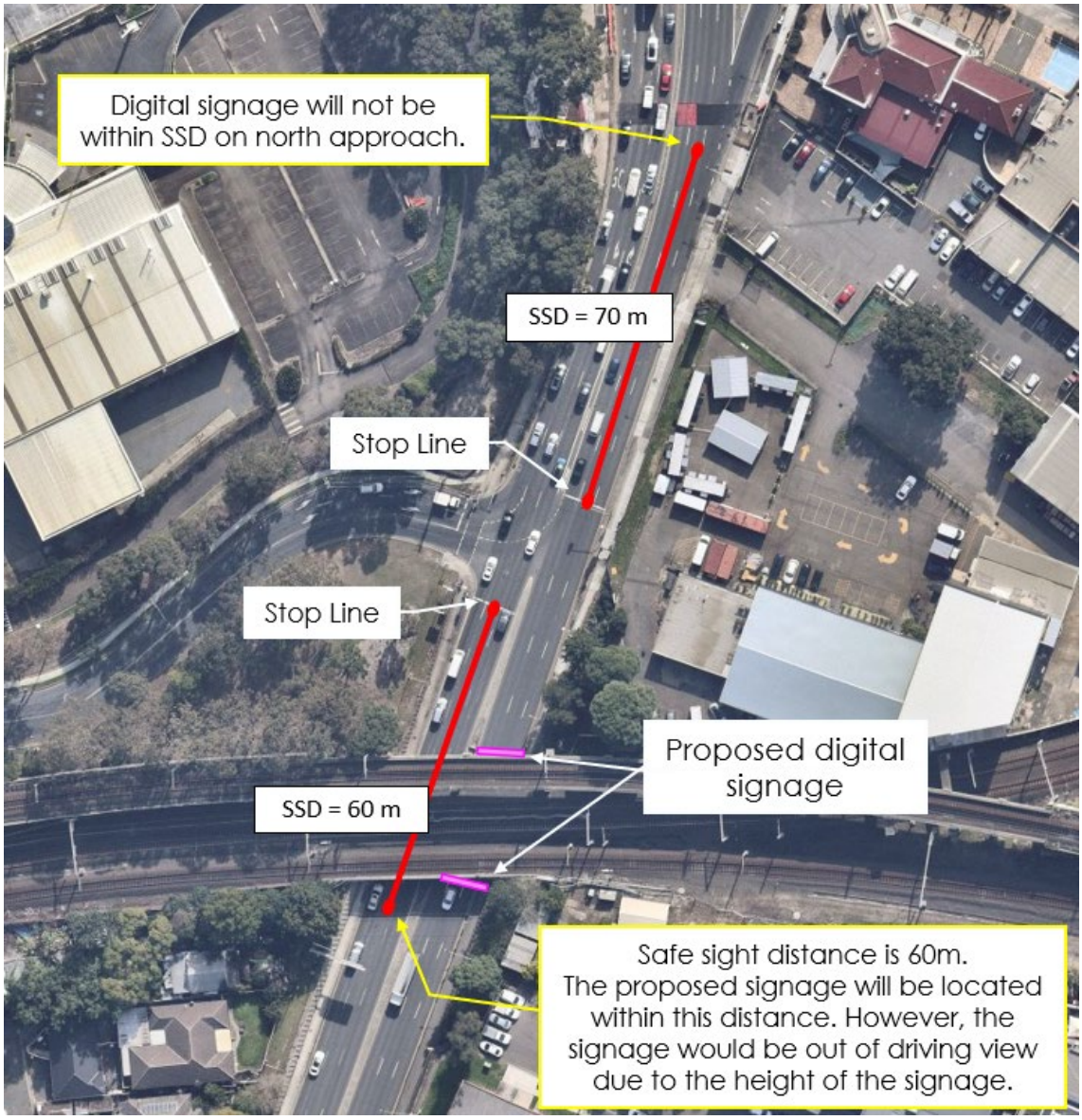


Figure 3.2: South Approach - Driving View at 60 m

From the safe sight distance (of 60 m), the cantilever traffic lantern is not visible when travelling in Lane 3. Driver sight lines to the cantilever traffic lantern are obstructed by the rail bridge columns as can be seen in Figure 3.2. Presumably, this has resulted in the 'Prepare to Stop' and flashing lights advanced warning signage on the south approach. It is noted that this is an existing condition. Notwithstanding this, the digital signage would not further impede visibility to the traffic signals as assessed above.

As a measure to mitigate any preserved safety risk of the signage placement in the vicinity of the traffic signals, it is recommended that the minimum dwell time for content displayed on the digital signage be increased from the suggested duration as stipulated by the *Transport Corridor Outdoor Advertising and Signage Guidelines*.

For signage that is in an area having a speed limit below 80 km/h, the Guidelines prescribe a dwell time of 10 seconds. However, it is suggested that this be increased to a minimum of 15 seconds on the north and south approach.

The basis for this recommendation is the Land and Environment Court Case, *Outdoor Systems Pty Ltd v Georges River Council and Roads and Maritime Services [2017] NSWLEC 1505*. In this case, a digital signage was proposed to be installed at the intersection of Princes Highway and Rocky Point Road in Kogarah. The applicant proposed to modify the dwell time of the digital signage to 15 seconds (from 24 hours, as previously approved by RMS as the minimum dwell time).

The north facing digital signage would be visible from Crescent Street west approach. Crescent Street is a side street that intersects with Woodville Road at a signalised T-junction. Crescent Street has two left-turn lanes towards Woodville Road north approach; the right turn from Crescent Street to Woodville Road south approach is not permitted. The lane configuration on Crescent Street in the vicinity of the proposed signage is shown in Figure 2.8.

The north facing digital signage would be visible to motorist's stationary on Crescent Street who are waiting at a red traffic signal. The signage would be visible approximately 20 m from the stop line on the west approach. Beyond this point, driver sight lines to the digital signage would be impeded due to the acute angle of the driver relative to the signage, as well as the inclined road verge that is filled with vegetation and trees.

The likely visible distance on Crescent Street west approach is shown in Figure 3.4.

Figure 3.3: Crescent Street West Approach Lane Configuration

Source: Photograph taken by TTPP on 30/11/2020

Figure 3.4: Driver's View from Crescent Street

Source: Photograph taken by TTPP on 30/11/2020

It is noted that there is a precedence for this arrangement at other digital advertising sign locations throughout Sydney. One example is the digital advertising sign on Help Street overhead rail way bridge facing westbound motorists which can be seen from Pacific Highway northbound motorists waiting at the Boundary Road intersection traffic lights, as shown Figure 3.5.

Figure 3.5: Pacific Highway and Boundary Road, Chatswood – View East towards Digital Advertising Sign

Source: Google Maps

Also, the north facing digital signage would be visible from the left turn slip lane from Parramatta Road. It is noted that the left turn practically functions as a slip lane on-site due to the short merge length as shown in Figure 3.6.

The start of the slip lane is 125 m away from the digital signage (Figure 3.7), which is beyond the likely readable distance from the digital signage as well as the safe sight distance of the intersection. As mentioned in Section 2.3.1, the likely readable distance on the north approach would be 110 m. Therefore, the potential for the digital signage to distract a driver in the slip lane is reduced.

Furthermore, a driver that is leaving the slip lane to enter Woodville Road would be looking over their right shoulder towards oncoming traffic. Therefore, the driver's focus would be in the opposite direction of the signage, observing a safe gap in the oncoming traffic flow to enter Woodville Road. Thus, further reducing the distraction potential at this location.

Figure 3.6: Parramatta Road Left Turn Slip Lane/ Merge

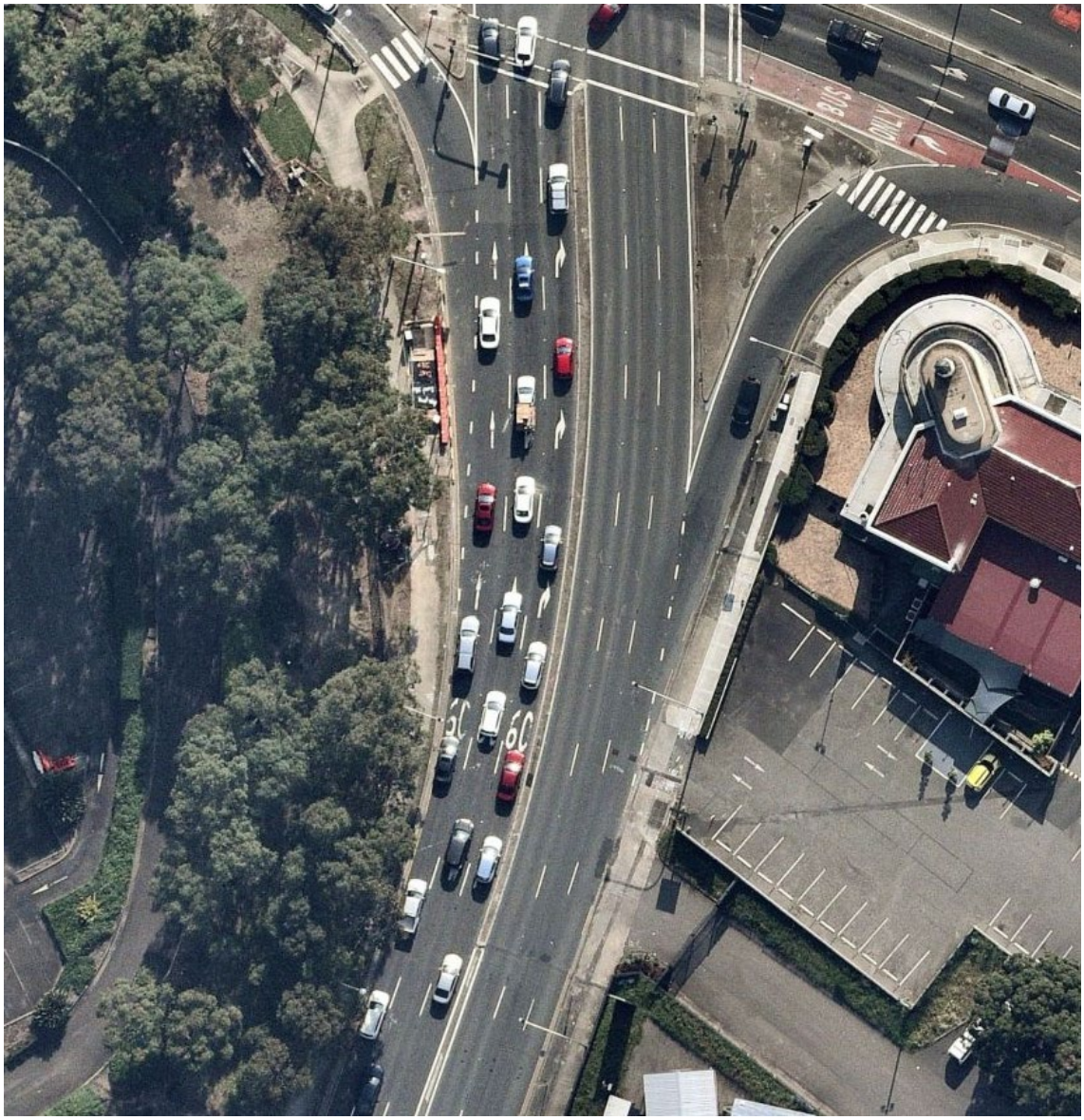


Figure 3.7: Driver's View from Parramatta Road Left Turn Slip Lane

Source: Photograph taken by TTPP on 30/11/2020

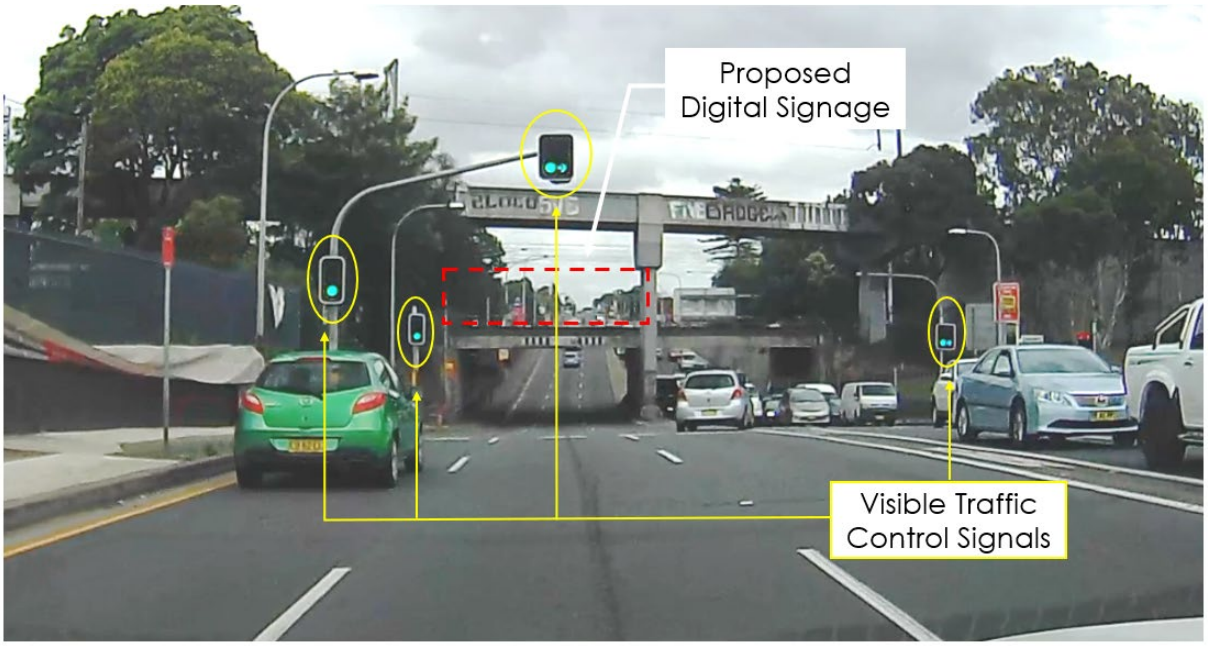
(b) The placement of a sign should not distract a driver at a critical time. In particular, signs should not obstruct a driver's view:

- ***(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 decision is required, implying that a road safety implication could occur if a driver was distracted at this time.

Within the visible distance on the north approach, the proposed digital signage would be positioned away from traffic signal lanterns on Woodville Road in both directions, as shown in Figure 3.8 and Figure 3.9.

Figure 3.8: Driving View of Traffic Signals on North Approach



Source: Photograph taken by TTPP dated 30/11/2020

Figure 3.9: Driving View of Traffic Signals on South Approach

Source: Photograph taken by TTPP dated 30/11/2020

3.1.4 Sign Spacing

(a) 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 will be assessed by RMS as part of their concurrence role.

In built-up urban areas, it is impracticable to limit the spacing of signage at 150 m apart. Especially within Sydney Metropolitan, drivers can be exposed to many signs at any given time.

Noting this, there are no other digital signs or static billboards placed within 150 m of the proposed signage. There is a directional sign located prior to the digital signage on the south approach. However, the directional sign cantilever above the northbound carriageway while the digital signage is proposed above the southbound carriageway. Therefore, the two signs would not overlap, nor would the directional signage become misconstrued due to the digital signage.

3.2 Sign Design and Operation Criteria

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?***

Details of the advertisement/s are not yet known since the project is still within the concept design stage. However, based on the example advertisements as depicted in the designer's impression (Figure 2.4 and Figure 2.9), the signage would not display colours and shapes which could be mistaken for a traffic signal.

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

As the proposed signage would be located in the vicinity of traffic signals, it is recommended that the use of flashing lights and digital content containing 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 not be used. Green or amber should be restricted to avoid additional distraction potential. Furthermore, the image must not contain text providing driving instructions to drivers.

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 image display must not be less than:
(i) 10 seconds for areas where the speed limit is below 80km/h
(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.

The digital signage is proposed to contain text and images. Based on the NSW Guidelines, the minimum dwell time for content displayed on the digital signage would be 10 seconds. However, since that the proposed digital signage is located within close proximity to traffic signals, it is recommended that the dwell time on both the north and south approach be increased from 10 seconds to 15 seconds as explained in Section 3.1.3.

3.2.3 Illumination and Reflectance

(a) Luminance levels must 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 NSW Guidelines details assessment criteria to ensure that illumination and reflectance qualities of signage 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.

3.2.4 Interaction and Sequencing

(a) The advertisement must no 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 signage would not contain interactive technology or technology that enables opt-in direction communication with motorists. The digital signage would not be designed to make motorists anticipate information.

3.3 Digital Signs

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

It is noted that most 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 Signs

	Criteria	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 3.1.3, a dwell time of 15 seconds would be suitable for the proposed digital signage on the north and south approach.
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 signage would be classified as Zone 1, with no limit to illuminance levels. Note: Zone 1 covers areas with generally very high off-street ambient lighting, e.g. display centres similar to Kings Cross, central city locations.
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	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.
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 will be assessed by RMS as part of their concurrence role.*	Noted.
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.*	The proposed digital signage would maintain the same vertical clearance as the existing railway bridge which is 4.4 m.
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.*	Noted.
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.*	Noted.

4 Conclusion

Having consideration for the assessment and discussions presented within this report, the analysis suggests that the installation of a digital signage off the side of the existing rail bridge across Woodville Road would be acceptable.

The Guidelines stipulate that the dwell time for an image display must not be less than 10 seconds for areas where the speed limit is below 80 km/h. The digital signage is proposed in an area that is zoned as 60 km/h, and thus, a minimum dwell time of 10 seconds is applicable. However, since the proposed digital signage is located within close proximity to traffic signals on Woodville Road, it is recommended that the minimum dwell time be increased to 15 seconds on both the south and north approach.

This conclusion is made on the basis that the proposed signage would not be expected to:

- Obstruct/ reduce visibility of any traffic control devices, pedestrians or cyclists
- Give incorrect information on the alignment of the road
- Interfere with the safe stopping distance to traffic signals, crossings or directional/ information signage
- Compromise safety for road users in the vicinity.

Appendix A

Concept Design Plans

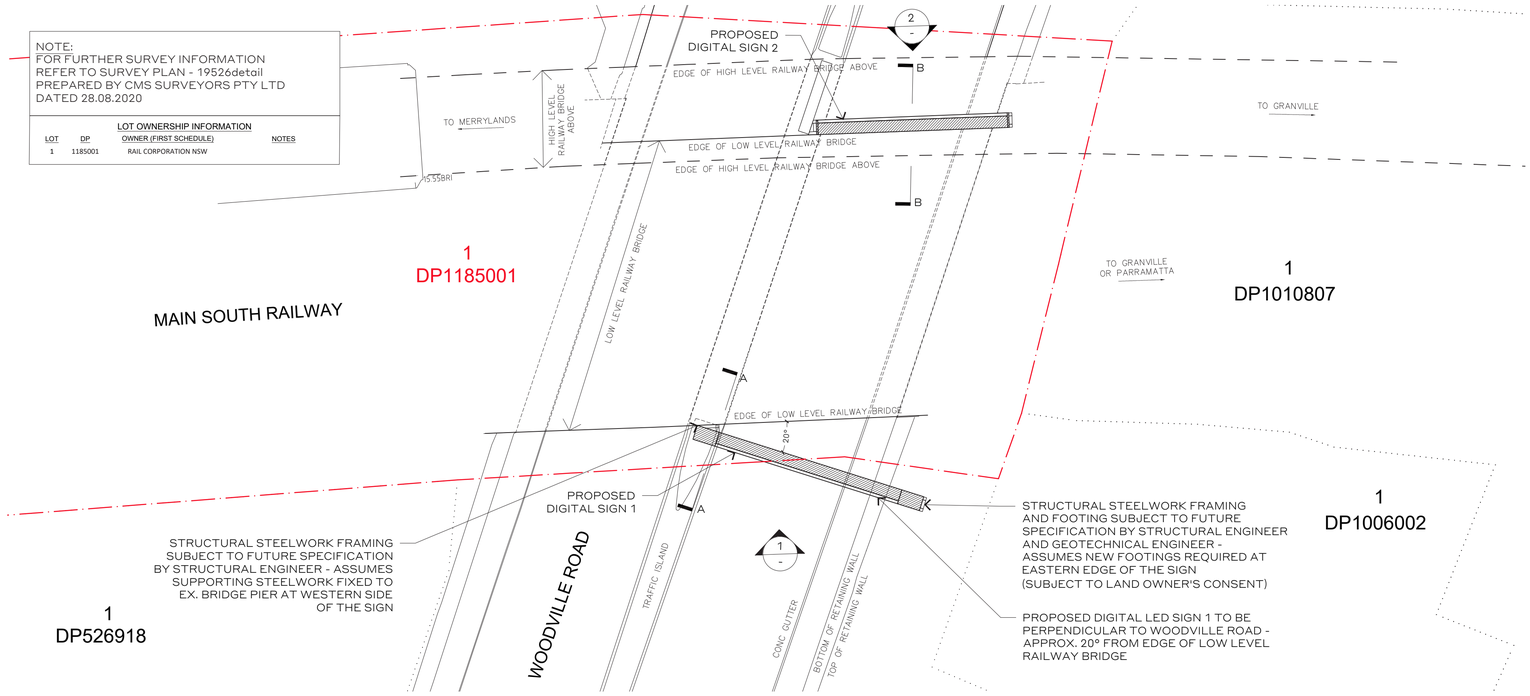
LOCATION PLAN - AERIAL PHOTO

NTS

NOTE:
FOR FURTHER SURVEY INFORMATION
REFER TO SURVEY PLAN - 19526detail
PREPARED BY CMS SURVEYORS PTY LTD
DATED 28.08.2020

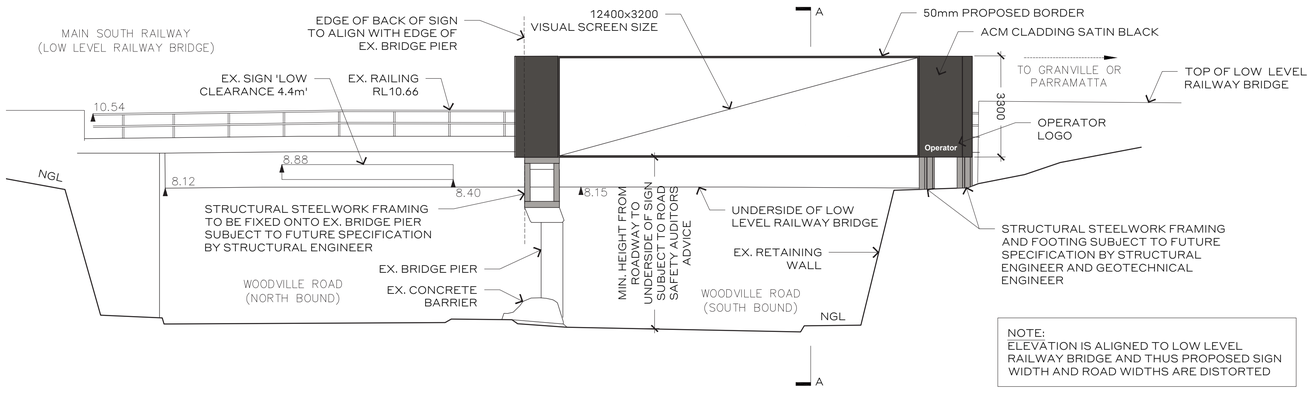
LOT OWNERSHIP INFORMATION

LOT	DP	OWNER (FIRST SCHEDULE)	NOTES
1	1185001	RAIL CORPORATION NSW	



SITE PLAN

SCALE 1:200 @ A1



NOTE:
ELEVATION IS ALIGNED TO LOW LEVEL RAILWAY BRIDGE AND THUS PROPOSED SIGN WIDTH AND ROAD WIDTHS ARE DISTORTED

SOUTH ELEVATION

SCALE 1:100 @ A1

NOT FOR CONSTRUCTION

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www.ethosurban.com
173-185 Sussex Street Sydney NSW 2000
t +61 2 9956 6962

LEGEND / NOTES

Photomontage location
Indicative signage location

ISSUE	DATE	REVISION	REVISION BY	APPROVED BY
P1	20.10.20	Work in progress	PN	SM

DRAFT

PROJECT

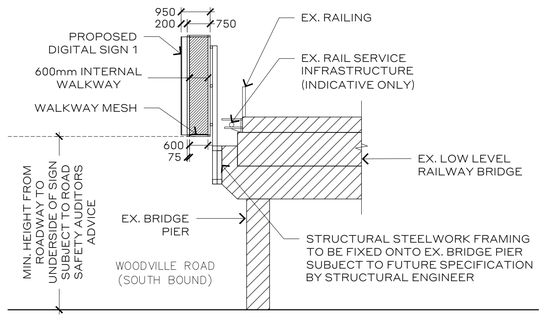
DOOH Development Applications
Prepared for Sydney Trains

SCALE
AS SHOWN @ A1

DRAWING

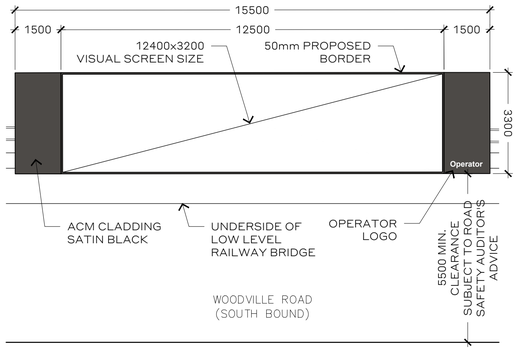
Site Plan & General Arrangement 1 **A-17.1**
Site 17 - Granville (Southern Side) /P1

JOB NO.	DWG NO.	ISSUE	DATE	DRAWN BY
2200249	A-17.1	P1	20.10.20	PN



SECTION A-A

SCALE 1:100 @ A1



TYPICAL FRONT ELEVATION

SCALE 1:100 @ A1

PHOTOMONTAGE - VIEW 1

View from Woodville Road looking north

NOT FOR CONSTRUCTION

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LEGEND / NOTES

Photomontage location
Indicative signage location

ISSUE	DATE	REVISION	REVISION BY	APPROVED BY
P1	20.10.20	Work in progress	PN	SM

DRAFT

PROJECT

DOOH Development Applications
Prepared for Sydney Trains

SCALE
AS SHOWN @ A1

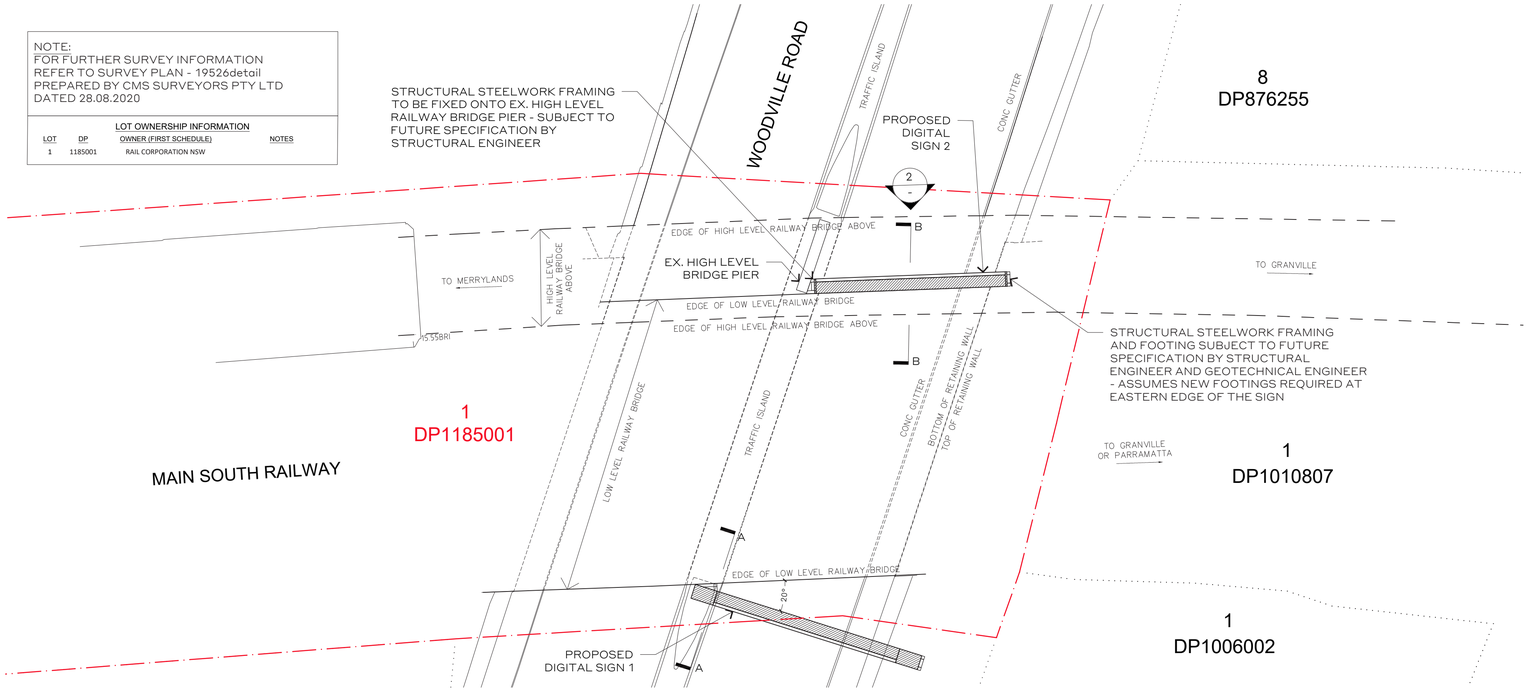
DRAWING

Section, Elevation & Photomontage **A-17.2**
Site 17 - Granville (Southern Side) /P1

JOB NO.	DWG NO.	ISSUE	DATE	DRAWN BY
2200249	A-17.2	P1	20.10.20	PN

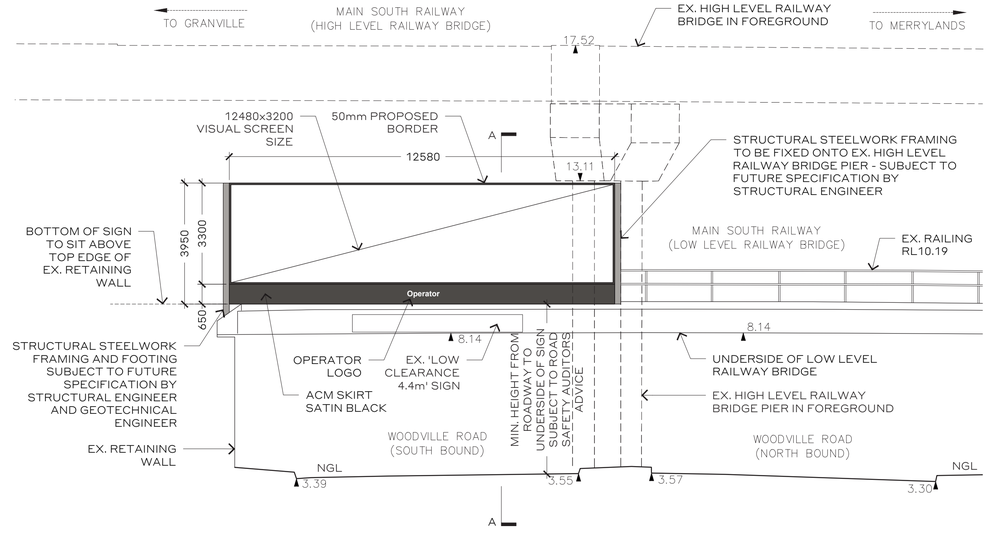
LOCATION PLAN - AERIAL PHOTO

NTS



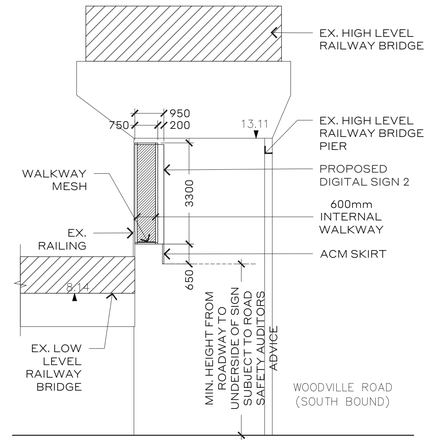
SITE PLAN

SCALE 1:200 @ A1



NORTH ELEVATION

SCALE 1:100 @ A1



SECTION B-B

SCALE 1:100 @ A1

PHOTOMONTAGE - VIEW 2

View from Woodville Road looking south

NOT FOR CONSTRUCTION

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LEGEND / NOTES

- Photomontage location
- Indicative signage location

ISSUE	DATE	REVISION	REVISION BY	APPROVED BY
P1	20.10.20	Work in progress	PN	SM

DRAFT

PROJECT

DOOH Development Applications
Prepared for Sydney Trains

SCALE
AS SHOWN @ A1

DRAWING

Site Plan & General Arrangement 2 **A-17.3**
Site 17 - Granville (Northern Side) /P1

JOB NO.	DWG NO.	ISSUE	DATE	DRAWN BY
2200249	A-17.3	P1	20.10.20	PN

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