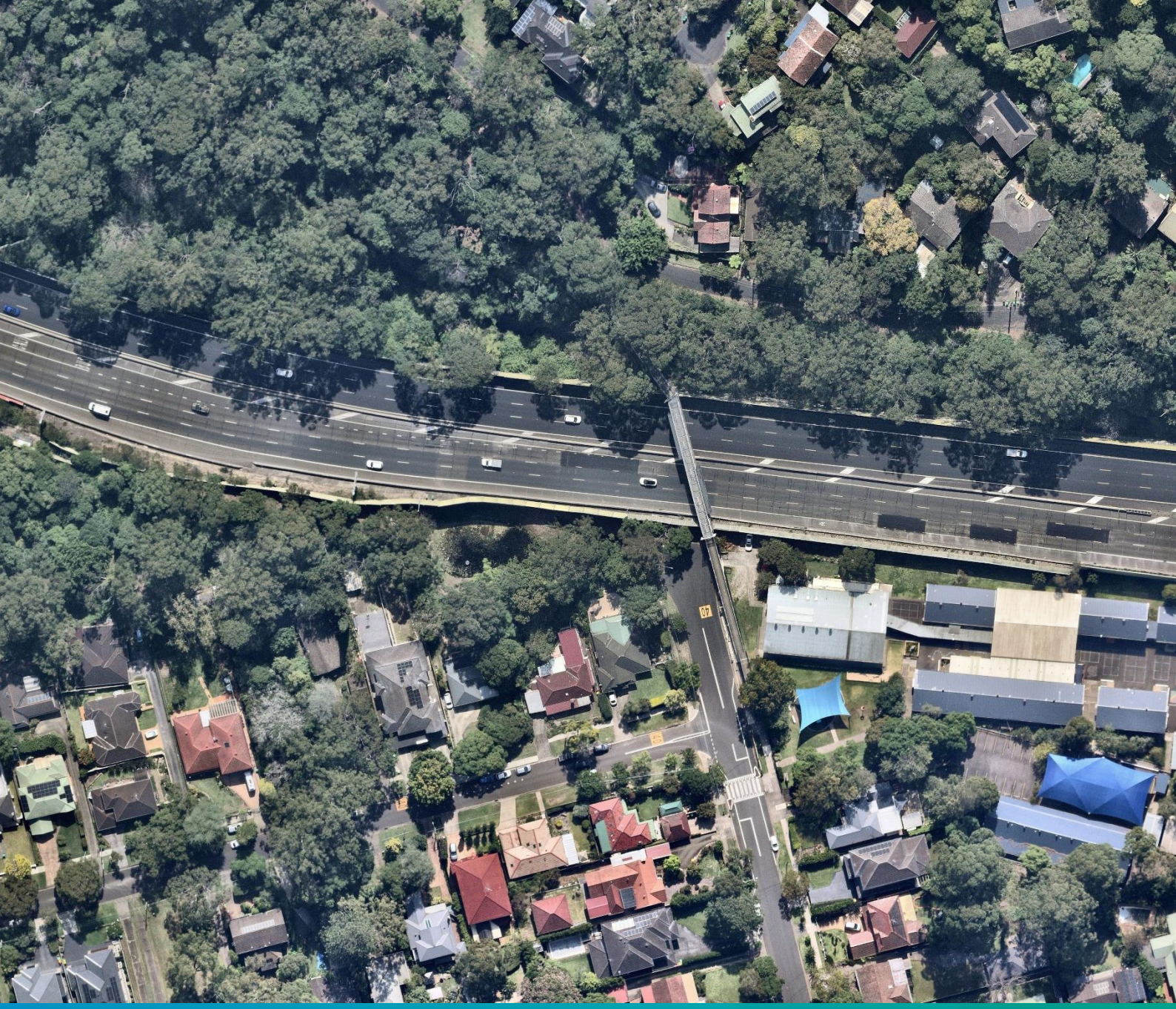

M2 Hills Motorway Static (Paper) Advertising Sign – Road Safety Assessment (Hornsby Shire Council and City of Parramatta)

PRJ-25-03941

DAVID MCTIERNAN & NOHA ELAZAR

18/08/2025 | Version 2.0

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1 Introduction

1.1 Background

Manboom Signage has engaged NTRO (formerly known as ARRB) to conduct a road safety assessment of two existing static (paper) billboard advertising signs located within Hornsby Shire Council and City of Parramatta. The signs are located along M2 Hills Motorway at the Kent Street pedestrian footbridge (facing Eastbound and Westbound traffic). These signs were previously approved under development consent 031-07-2011, which was issued for a period of 15 years. As this period is due to expire new development applications are required and are now undergoing reassessment in line with updated road safety and planning guidelines, including Industry and Employment SEPP (2021) and the Transport Corridor Outdoor Advertising and Signage Guidelines.

A site-based road safety assessment has been undertaken to determine whether the existing billboard placements remain suitable under current conditions. This includes:

- A desktop review and site inspection of both sign locations.
- An assessment of the signage against updated criteria from the Transport Corridor Guidelines relevant to static (paper) signage, including sight distance, conflict points, and driver distraction risk.

In preparing this assessment, the following elements of the current road environment were reviewed:

- The layout and type of infrastructure on approach to and near each sign location.
- The presence of new infrastructure, signage, vegetation or roadside furniture that may obstruct or be visually impacted by the billboard.
- Any changes to traffic conditions, sightlines or road usage patterns that may alter the original safety assessment.

The assessment team brings experience in road safety auditing and has reviewed multiple advertising sign locations across similar urban arterial environments. The principles of road safety auditing have been applied to this site assessment, and the knowledge and experience of the assessment team with similar proposals has been used to prepare this report.

A conclusion about the suitability of the location of the existing static (paper) advertising billboard from a road safety engineering perspective is provided.

1.2 Purpose of the Report

This report sets out the findings of NTRO's signage safety assessment for two existing static (paper) billboard signs located on the M2 Hills Motorway at the Kent Street pedestrian footbridge.

The following items have been considered in this assessment:

- Potential for the static (paper) billboard to obstruct a driver, pedestrian or cyclist's view of the road and/or traffic control devices.
- Distance from upstream or downstream intersections or other decision-making points.
- Potential for the billboard to distract drivers at a critical time, particularly near areas of high visual or cognitive load.

- Location within the road corridor and its potential to interfere with safe vehicle operation or pedestrian movements.
- Placement in relation to Safe Stopping Sight Distance (SSD) requirements, based on the speed environment.
- Proximity to other existing signs or roadside infrastructure, and potential for visual clutter.

1.3 References

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

- A day-time inspection of the site and its surrounds on 17 April 2025. The traffic conditions at the time were moderate with overcast weather conditions.
- A night-time assessment on 15 August 2025. The traffic conditions at the time were moderate with clear weather conditions.
- State Environment Planning Policy (Industry and Employment) 2021 and the Transport Corridor Outdoor Advertising and Signage.
- Guide to Road Design Part 3 – Geometric Design, Austroads, September 2021.

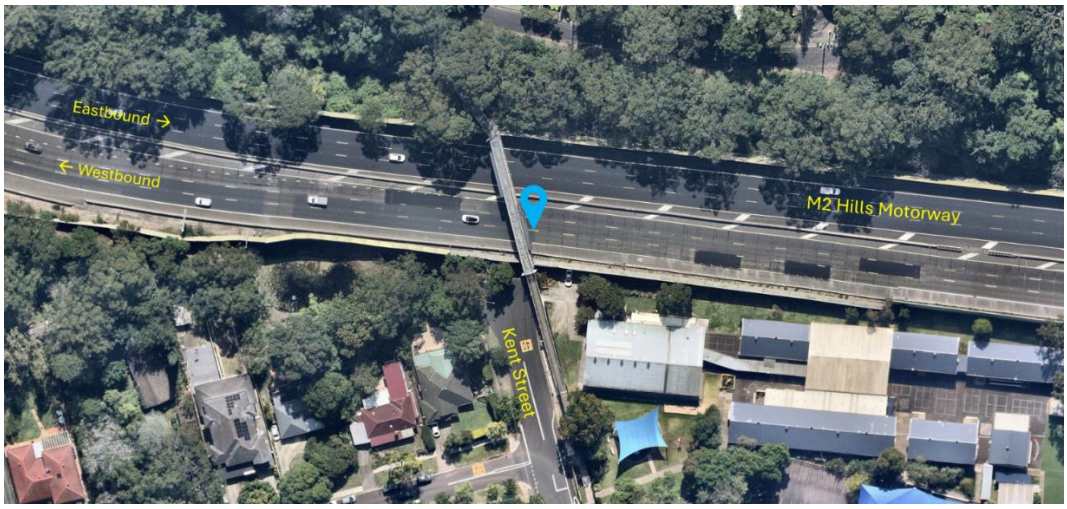
2 Site Review

2.1 Kent Street Westbound

2.1.1 Sign Location

The location of the proposed static (paper) billboard sign is on the eastern facing side of the Kent St pedestrian footbridge facing westbound traffic, as shown in the blue pin in Figure 2-1.

Figure 2-1 Location of the billboard (Kent Street westbound)

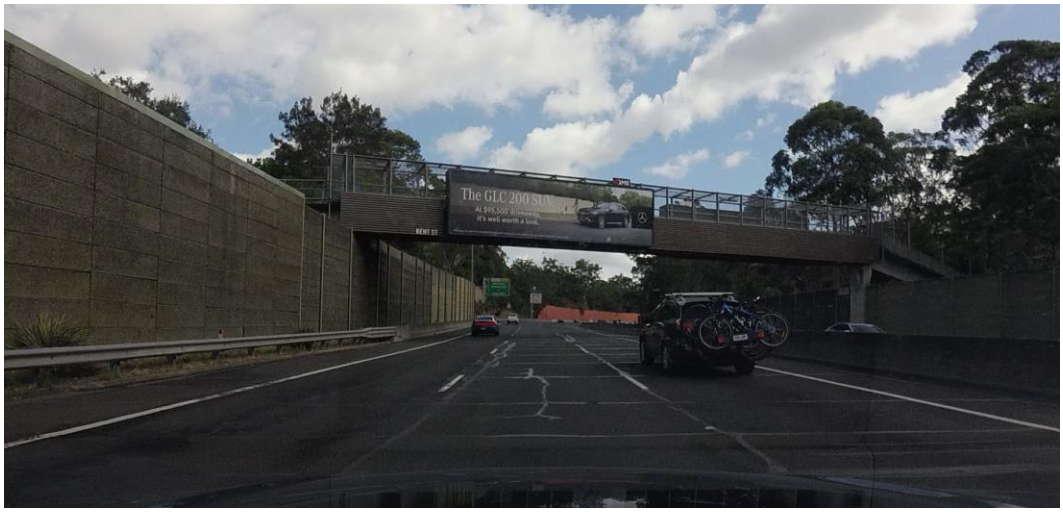


Source: Nearmap (modified by the author)

2.1.2 Sign Description

An image of the billboard is shown in Figure 2-2, showing it affixed to the pedestrian footbridge.

Figure 2-2 Image of billboard (Kent Street westbound)



Source: NTRO (2025)

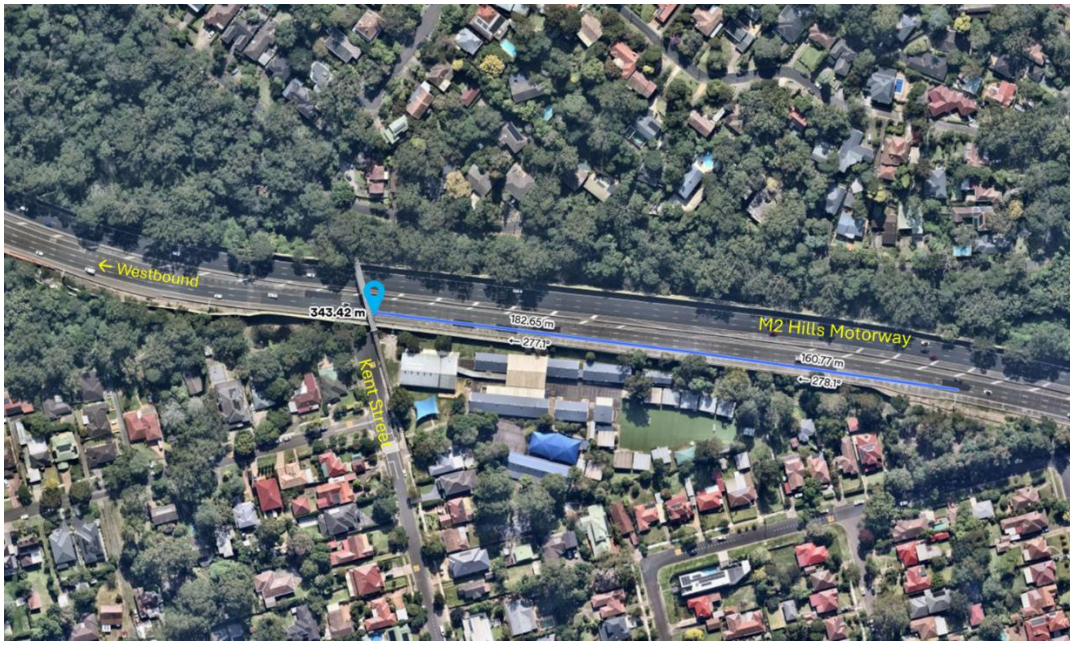
2.1.3 Visibility and Approach Conditions

The westbound approach along the M2 Hills Motorway features a three-lane, divided carriageway with a posted speed limit of 100 km/h. The alignment of the road is generally straight in both vertical and horizontal profiles.

The static (paper) billboard is mounted to a pedestrian overpass located above the carriageway. The sign becomes visible to approaching westbound traffic from a distance of approximately 340 m (Figure 2-3).

There are no obstructions such as roadside vegetation, signage or furniture that interfere with the visibility of the sign. Due to the straight road geometry and unobstructed view, the billboard maintains a clear line of sight for an extended period prior to and during the approach.

Figure 2-3 Westbound traffic approach sign exposure (Kent Street westbound)



Source: Nearmap (modified by the author)

Night-time Assessment

Site context – minimal public lighting on overpass and no street lighting on the M2 approach.

The sign is internally lit and was not considered to present an excessive lighting glare to approaching drivers. The level of lighting did not increase the conspicuity of the sign (compared to daytime conditions) or cause a distraction from the driving task or information signs.

Figure 2-4 and Figure 2-5 show the sign at night-time at distances of 150 m and 70 m respectively.

Figure 2-4 Kent Street Westbound – at 150 m distance

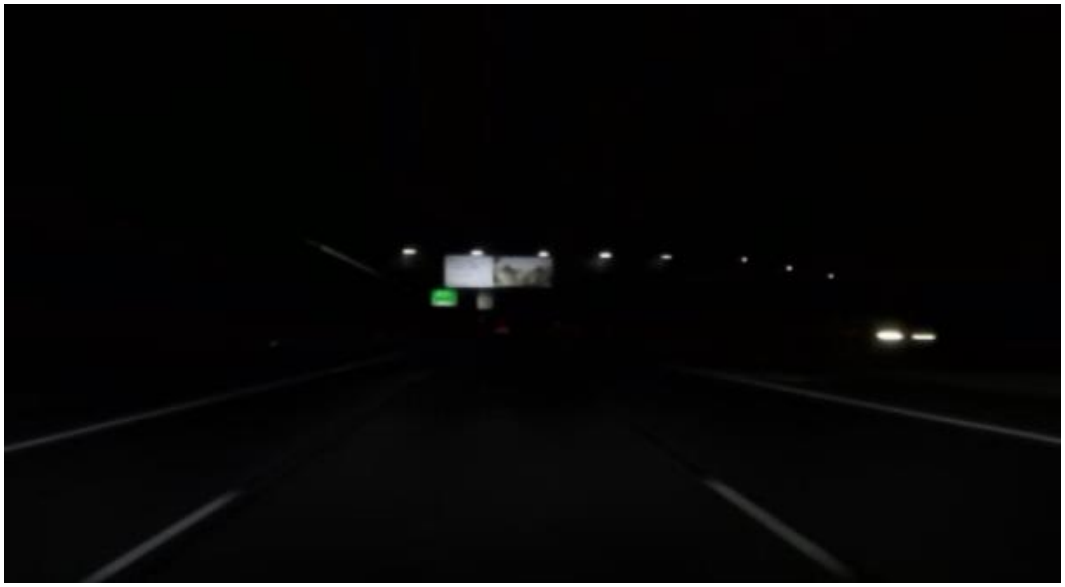
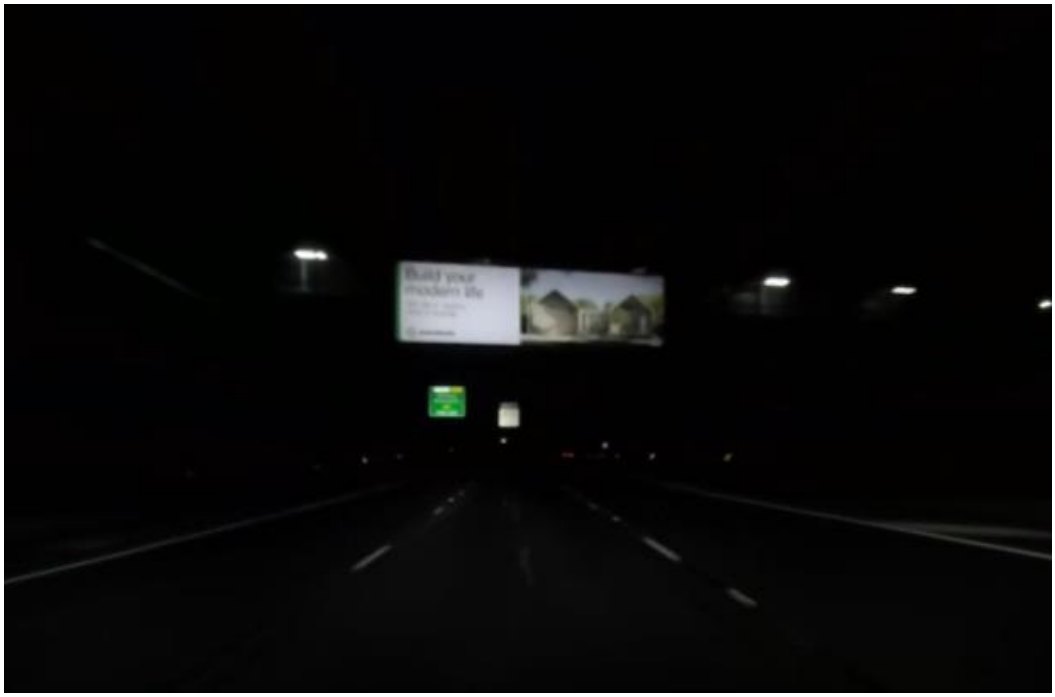


Figure 2-5 Kent Street Westbound – at 70 m distance



2.1.4 Crash Data

An analysis of crash data along M2 Hills Motorway for the 5 year period (2020 to 2024), shows that there were no crashes within vicinity of the Kent Street westbound static (paper) billboard.

2.1.5 Statutory Requirements

This section of the report assesses compliance of the static (paper) billboard sign with the road safety assessment criteria established in the State Environment Planning Policy (Industry and Employment) 2021 and the Transport Corridor Outdoor Advertising and Signage, as to whether the proposal will reduce the safety of:

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

In order to ensure consistency with the above key road safety assessment criteria, a response is provided for each of the detailed criteria set out below.

Road Clearance (Section 3.2.1 of the Guidelines)

(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).

The sign is located on the Kent Street pedestrian overpass, elevated above both vehicular and pedestrian paths and does not obstruct movement of pedestrians or cyclists.

(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?

The sign does not protrude below the overpass structure and maintains sufficient vertical clearance above the M2 Hills Motorway for all vehicular traffic.

(iii) Does the sign protrude laterally into the transport corridor so it could be hit by trucks or wide vehicles?

The sign is flush-mounted to the pedestrian overpass structure and does not protrude laterally into the traffic corridor.

(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 sign is affixed to an overhead pedestrian bridge, which is outside the clear zone and does not require frangible supports or protection via crash barriers.

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

Not applicable, as the sign is located overhead and outside the vehicle clear zone.

(d) All signs that are permitted to hang over roads or footpaths should meet wind loading requirements as specified in AS 1170.1 and AS1170.2. All vertical clearances as specified above are regarded as being the height of the sign when under maximum vertical deflection.

Wind loading requirements will be considered and verified by structural engineers during the design and certification process in accordance with AS 1170.1 and AS 1170.2.

(e) Additional road clearance criteria for digital signs:

Digital signs greater or equal to 20 sqm must ensure the following clearances;

- **2.5m from lowest point of the sign above the road surface if located outside the clear zone.**
- **5.5m from lowest point of the sign above the road surface if located within the clear zone or the deflection zone of a safety barrier if installed.**

Not applicable. The sign is not a digital sign. It is a static (paper) sign and is located on a pedestrian bridge.

- **If attached to Road Infrastructure (e.g. overpass), the digital sign must be positioned so that no portion of the sign is lower than the minimum vertical clearance under the overpass or supporting structure.**

The sign is not digital. However, it is mounted on the overpass structure and maintains the necessary vertical clearance.

(f) Additional road clearance criteria for footpath/nature strip signs:

- **To ensure adequate clearance for pedestrian and wheelchair access, the sign must be positioned so that an absolute minimum envelope of 900mm x 2000mm of unobstructed clear path of travel is maintained for the entire length of the advertising structure.**

Not applicable, as the sign is not located on a footpath or nature strip.

Line of Sight (Section 3.2.2 of the Guidelines)

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

This criterion is satisfied.

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

This criterion is satisfied.

(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 sign 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 is not located in a position that would give misleading visual cues about the road alignment. It is fixed to an overpass and does not interfere with the driver's perception of the road layout.

(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.

The sign is positioned such that drivers can view it without turning their heads significantly away from the road. Drivers are expected to maintain a clear view of the roadway and surrounding traffic while viewing the sign in their peripheral vision. Therefore, it is not expected to distract drivers for an extended period.

(ii) The sign should be oriented in a manner that does not create headlight reflections 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 headlight 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 sign is fixed perpendicular to the road and not positioned in a way that would create headlight reflections. Given the straight road alignment and overhead positioning, there is no risk of glare or visual disturbance in the driver's line of sight.

Proximity To Decision Making Points And Conflict Points (Section 3.2.3 Of The Guidelines)

(a) A sign should not be located:
(i) Less than the safe sight distance from an intersection, merge point, exit ramp, traffic control signal or sharp curves.

The sign is located on the east facing side of the Kent Street pedestrian overpass along the westbound carriageway of the M2 Hills Motorway. The road is straight, with no nearby ramps, merge points, exit ramp, curves or traffic control signal.

Therefore, the location meets this criterion.

(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.

There are no marked pedestrian crossings, refuges, or cyclist facilities along the westbound carriageway of the M2 approaching this sign.

Therefore, this criterion is satisfied.

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

There are no nearby T-intersections with visibility to the sign. The overpass is pedestrian-only and does not intersect with the motorway.

This criterion is satisfied.

(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

There are no hazards, such as sharp curves, median structures, or elevation changes in the approach.

This criterion is satisfied.

(ii) to an intersection

There are no intersections visible from the approach to the westbound sign.

This criterion is satisfied.

(iii) to a prescribed traffic control device (such as traffic signals, stop or give way signs or warning signs)

There are no regulatory or warning signs obstructed by the sign placement.

This criterion is satisfied.

(iv) to an emergency vehicle access point or Type 2 driveways (wider than 6-9 metres) or higher.

There are no known emergency access points or wide commercial driveways impacted by the billboard.

This criterion is satisfied.

Illumination and Reflectance (Section 3.3.3 of the Guidelines)

(a) Luminance levels must comply with the requirements in Table 6 (of the guidelines) Luminance Levels for Digital Advertisements.

This is an issue of advertising sign operation and is a matter for others and conditioning of the consent.

(b) 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.

This is an issue of advertising sign operation and is a matter for others and conditioning of the consent.

2.1.6 Recommendation

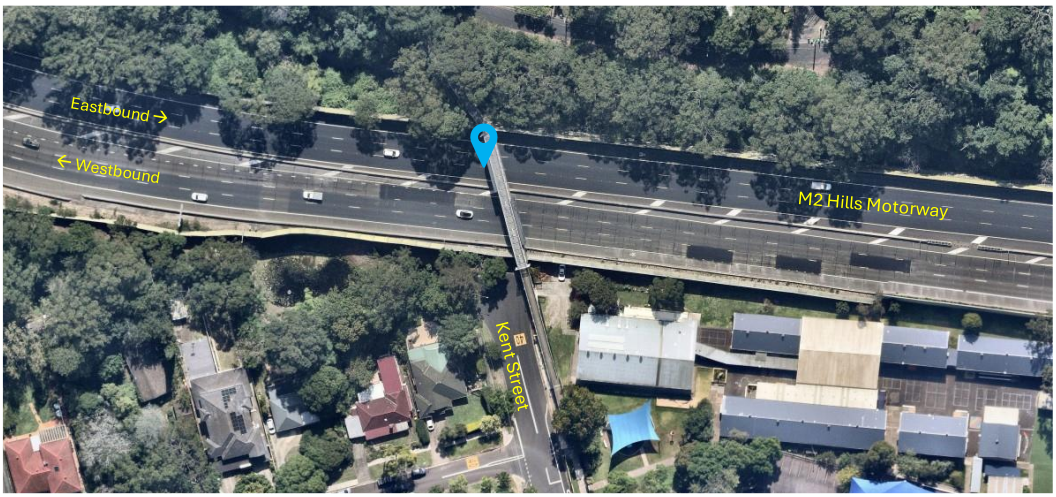
There are no road safety or traffic management issues identified that will increase road safety risk to road users.

2.2 Kent Street Eastbound

2.2.1 Sign Location

The location of the proposed static (paper) billboard sign is on the western facing side of the Kent St pedestrian footbridge facing eastbound traffic, as shown in the blue pin in Figure 2-6.

Figure 2-6 Location of the billboard (Kent Street eastbound)

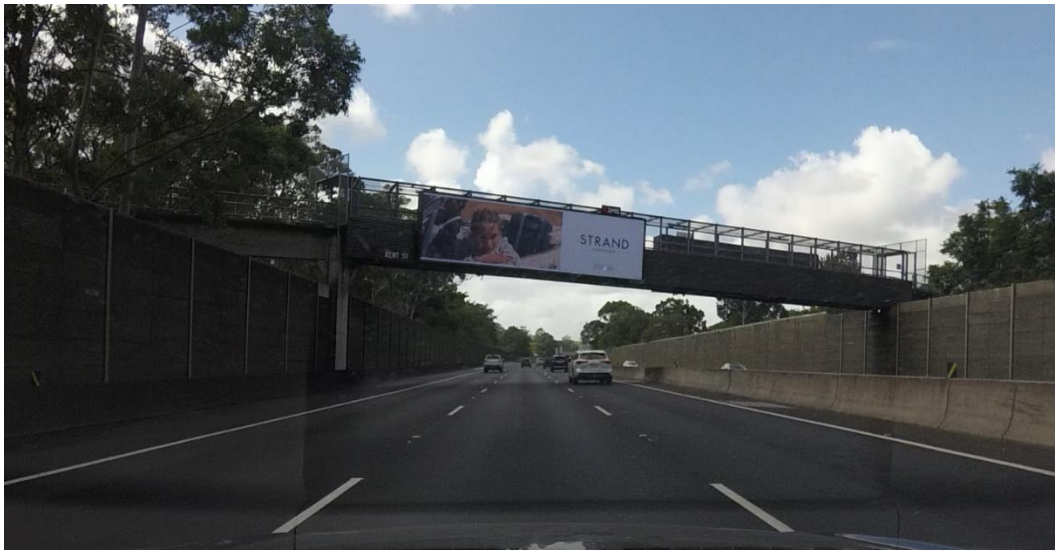


Source: Nearmap (modified by the author)

2.2.2 Sign Description

An image of the billboard is shown in Figure 2-7, showing it affixed to the pedestrian footbridge.

Figure 2-7 Image of billboard (Kent Street eastbound)



Source: NTRO (2025)

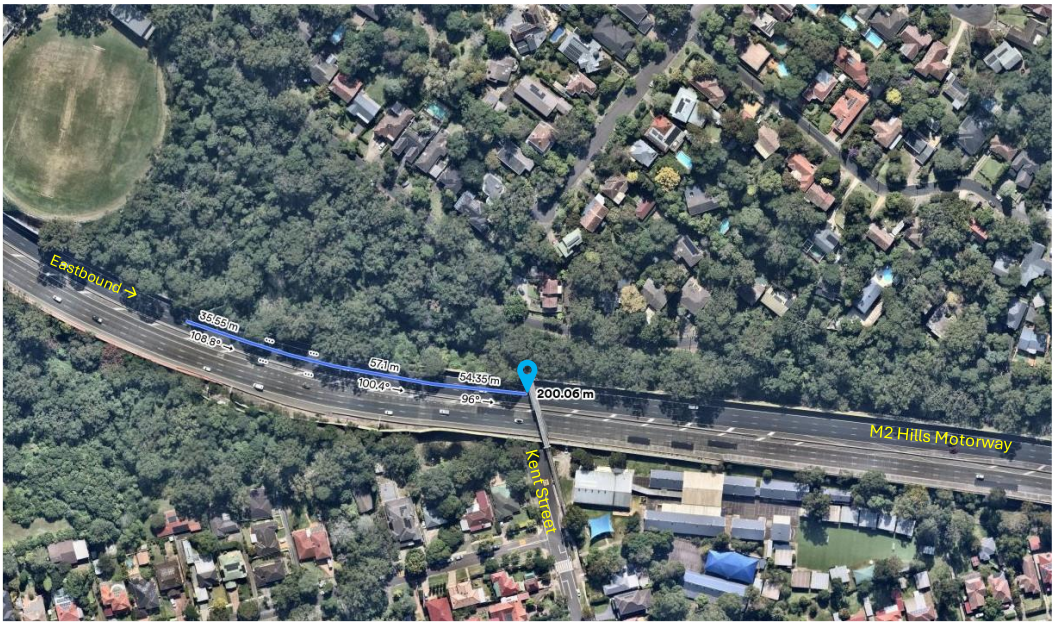
2.2.3 Visibility and Approach Conditions

The westbound approach along the M2 Hills Motorway features a three-lane, divided carriageway with a posted speed limit of 100 km/h. The alignment of the road is generally straight in both vertical and horizontal profiles.

The static (paper) billboard is mounted to a pedestrian overpass located above the carriageway. The sign becomes visible to approaching westbound traffic from a distance of approximately 200 m (Figure 2-8).

There are no obstructions such as roadside vegetation, signage or furniture that interfere with the visibility of the sign. Due to the straight road geometry and unobstructed view, the billboard maintains a clear line of sight for an extended period prior to and during the approach.

Figure 2-8 Westbound traffic approach sign exposure (Kent Street eastbound)



Source: Nearmap (modified by the author)

Night-time Assessment

Site context – minimal public lighting on overpass and no street lighting on the M2 approach.

The sign is internally lit and was not considered to present an excessive lighting glare to approaching drivers. The level of lighting did not increase the conspicuity of the sign (compared to daytime conditions) or cause a distraction from the driving task or information signs.

Figure 2-9 and Figure 2-10 show the sign at night-time at distances of 150 m and 75 m respectively.

Figure 2-9 Kent Street Eastbound – at 150 m distance

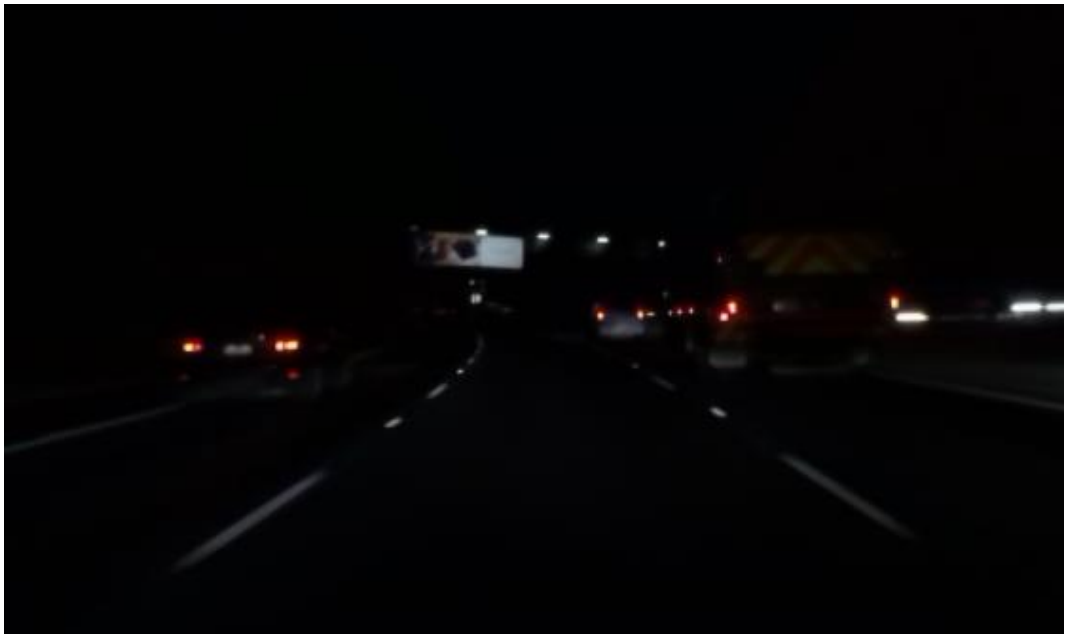
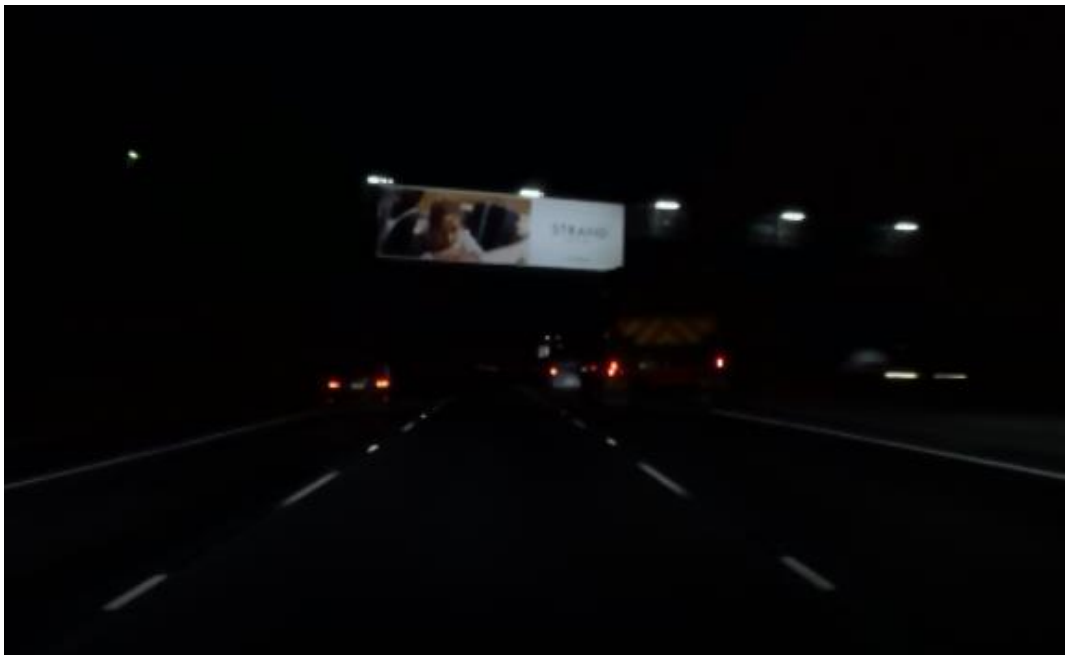


Figure 2-10 Kent Street Eastbound – at 75 m distance



2.2.4 Crash Data

An analysis of crash data along M2 Hills Motorway for the 5 year period (2020 to 2024), shows that there were no crashes within 250m of the static (paper) billboard.

2.2.5 Statutory Requirements

This section of the report assesses compliance of the static (paper) billboard sign with the road safety assessment criteria established in the State Environment Planning Policy (Industry and Employment) 2021 and the Transport Corridor Outdoor Advertising and Signage, as to whether the proposal will reduce the safety of:

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

In order to ensure consistency with the above key road safety assessment criteria, a response is provided for each of the detailed criteria set out below.

Road Clearance (Section 3.2.1 of the Guidelines)

(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).

The sign is located on the Kent Street pedestrian overpass, elevated above both vehicular and pedestrian paths and does not obstruct movement of pedestrians or cyclists.

(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?

The sign does not protrude below the overpass structure and maintains sufficient vertical clearance above the M2 Hills Motorway for all vehicular traffic.

(iii) Does the sign protrude laterally into the transport corridor so it could be hit by trucks or wide vehicles?

The sign is flush mounted to the pedestrian overpass structure and does not protrude laterally into the traffic corridor.

(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 sign is affixed to an overhead pedestrian bridge, which is outside the clear zone and does not require frangible supports or protection via crash barriers.

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

Not applicable, as the sign is located overhead and outside the vehicle clear zone.

(d) All signs that are permitted to hang over roads or footpaths should meet wind loading requirements as specified in AS 1170.1 and AS1170.2. All vertical clearances as specified above are regarded as being the height of the sign when under maximum vertical deflection.

Wind loading requirements will be considered and verified by structural engineers during the design and certification process in accordance with AS 1170.1 and AS 1170.2.

(e) Additional road clearance criteria for digital signs:

Digital signs greater or equal to 20 sqm must ensure the following clearances;

- **2.5m from lowest point of the sign above the road surface if located outside the clear zone.**
- **5.5m from lowest point of the sign above the road surface if located within the clear zone or the deflection zone of a safety barrier if installed.**

Not applicable. The sign is not a digital sign. It is a static (paper) sign and is located on a pedestrian bridge.

- **If attached to Road Infrastructure (e.g. overpass), the digital sign must be positioned so that no portion of the sign is lower than the minimum vertical clearance under the overpass or supporting structure.**

The sign is not digital. However, it is mounted on the overpass structure and maintains the necessary vertical clearance.

(f) Additional road clearance criteria for footpath/nature strip signs:

- **To ensure adequate clearance for pedestrian and wheelchair access, the sign must be positioned so that an absolute minimum envelope of 900mm x 2000mm of unobstructed clear path of travel is maintained for the entire length of the advertising structure.**

Not applicable, as the sign is not located on a footpath or nature strip.

Line of Sight (Section 3.2.2 of the Guidelines)

(e) An advertisement must not obstruct the driver's view of the road particularly of other vehicles, bicycle riders or pedestrians at crossings.

This criterion is satisfied.

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

This criterion is satisfied.

(g) 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 sign 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 is not located in a position that would give misleading visual cues about the road alignment. It is fixed to an overpass and does not interfere with the driver's perception of the road layout.

(h) 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.

The sign is positioned such that drivers can view it without turning their heads significantly away from the road. Drivers are expected to maintain a clear view of the roadway and surrounding traffic while viewing the sign in their peripheral vision. Therefore, it is not expected to distract drivers for an extended period.

(ii) The sign should be oriented in a manner that does not create headlight reflections 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 headlight 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 sign is fixed perpendicular to the road and not positioned in a way that would create headlight reflections. Given the straight road alignment and overhead positioning, there is no risk of glare or visual disturbance in the driver's line of sight.

Proximity To Decision Making Points And Conflict Points (Section 3.2.3 Of The Guidelines)

(c) A sign should not be located:
(i) Less than the safe sight distance from an intersection, merge point, exit ramp, traffic control signal or sharp curves.

The sign is located on the west facing side of the Kent Street pedestrian overpass along the eastbound carriageway of the M2 Hills Motorway. The road is straight, with no nearby ramps, merge points, exit ramp, curves or traffic control signal.

Therefore, the location meets this criterion.

(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.

There are no marked pedestrian crossings, refuges, or cyclist facilities along the eastbound carriageway of the M2 approaching this sign.

Therefore, this criterion is satisfied.

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

There are no nearby T-intersections with visibility to the sign. The overpass is pedestrian-only and does not intersect with the motorway.

This criterion is satisfied.

(d) 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

There are no hazards, such as sharp curves, median structures, or elevation changes in the approach.

This criterion is satisfied.

(ii) to an intersection

There are no intersections visible from the approach to the eastbound sign.

This criterion is satisfied.

(iii) to a prescribed traffic control device (such as traffic signals, stop or give way signs or warning signs)

There are no regulatory or warning signs obstructed by the sign placement.

This criterion is satisfied.

(iv) to an emergency vehicle access point or Type 2 driveways (wider than 6-9 metres) or higher.

There are no known emergency access points or wide commercial driveways impacted by the billboard.

This criterion is satisfied.

Illumination and Reflectance (Section 3.3.3 of the Guidelines)

(c) Luminance levels must comply with the requirements in Table 6 (of the guidelines) Luminance Levels for Digital Advertisements.

This is an issue of advertising sign operation and is a matter for others and conditioning of the consent.

(d) 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.

This is an issue of advertising sign operation and is a matter for others and conditioning of the consent.

2.2.6 Recommendation

There are no road safety or traffic management issues identified that will increase road safety risk to road users.

3 Discussion and Recommendation

Manboom Signage has engaged NTRO to undertake a road safety assessment of two existing static (paper) billboard advertising signs located on the pedestrian overpass at Kent Street, above the M2 Hills Motorway in Hornsby Shire Council and City of Parramatta.

The signs are positioned on the eastbound and westbound faces of the footbridge and were previously approved under earlier development consent 031-07-2011, which was issued for a period of 15 years. As this period is due to expire new development applications are required.

NTRO has assessed these signs against the current statutory requirements for outdoor advertising, as outlined in the updated road safety and planning guidelines, including Industry and Employment SEPP (2021) and the Transport Corridor Outdoor Advertising and Signage Guidelines.

This assessment supports the continued placement of the signage, having not identified any increased risk to road safety for motorists or other road users within the sign exposure distances along the M2 Hills Motorway at the Kent Street pedestrian footbridge.

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