

BEFORE THE HUTT CITY COUNCIL

**Proposed District Plan Hearings Panel – Stream #7 Other Topics
(Signs)**

IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER of the Proposed Lower Hutt District Plan

STATEMENT OF REBUTTAL EVIDENCE OF SEAN BELLAMY

ON BEHALF OF HUTT CITY COUNCIL

Intermediate Policy Planner

6 October 2026

1.0 Introduction

- 1.1 My name is Sean Bellamy, and I am an Intermediate Policy Planner at Hutt City Council. I am the reporting officer responsible for the Signs Chapter and the Activities on the Surface of Water Chapter.
- 1.2 I am the writer of the s32 and s42A assessment reports. I have reviewed the evidence and tabled rebuttal statements relating to signs provisions in the PDP.

2.0 Qualifications, experience, and Code of Conduct

- 2.1 My qualifications and experience are set out in section 2.3 of my Section 42A Report. I repeat the confirmation given in that report that I have read and agree to comply with the Code of Conduct for Expert Witnesses.

3.0 Scope of the report

- 3.1 This rebuttal evidence responds only to the pre-circulated written evidence and statements received from submitters prior to the hearing and listed below.
- 3.2 Other submitters may also present oral evidence or further details at the hearing. These may raise additional matters that could influence or alter the recommendations made in this rebuttal evidence.
- 3.3 I only cover points raised by submitters in the statements and evidence above where those relate to the matters addressed in the Signs Section 42A Report.
- 3.4 Except as expressly identified in this statement, all findings and recommendations contained in my original Section 42A report remain unchanged. For the sake of brevity, I will not comment on submitter statements and evidence where:

- the original Section 42A report recommended accepting the submitter's originally requested relief, or
- the statement or evidence concurs with the recommendation in the Section 42A report, or
- the statement or evidence repeats reasoning and evidence already present in the original submission,

unless the issue is also in dispute from the evidence of a different submitter, or there is otherwise some reasoning or other information not covered in the Section 42A reports.

3.5 I have reviewed the evidence and tabled statements of

- Catherine Heppelthwaite for KiwiRail and NZTA (385.83 and 442.76).
- Anthony Blomfield for OOHMAA (413.8, 413.10, 413.11, 413.12, 413.13, 413.14, 413.15, 413.16, 413.18, 413.20, 413.21 and 413.22, 413.23 FS21.1, FS21.3, FS21.4, FS21.5, FS21.6, FS21.7, FS21.8, FS21.9, FS21.10 and FS21.12).
- Brett Harries for OOHMAA
- Russ Kern for OOHMAA
- Philip Heffernan for Winstone Aggregates Limited (442.35 and 442.36).

3.6 In addition, Council commissioned a review of the technical reports on transport (Mr Harries) and lighting (Mr Kern) by Council's technical transport expert Mike Smith, and Ian Campbell, Council's technical illumination expert (attached as Appendix 2).

- Michael Smith – Council technical expert review of transport and lighting evidence.

3.7 Appendix 1 sets out my revised and updated recommended amendments in response to submitter evidence. Within Appendix 1, my Section 42A report recommended amendments are shown in red underlined or ~~strike-through~~ and further amendments

recommended in this rebuttal evidence are shown in blue underline or ~~strike through~~.

4.0 Responses to submitter evidence and statements

4.1 The following sections give my response to the expert evidence that has been lodged on the provisions that I am reporting officer for:

- Minimum dwell times for digital signs.
- Transition times for changes between images for digital signs.
- Average luminance.
- Activity status for signs.
- Maximum height of letters on signs.
- Threshold speed for high speed environments.
- Visibility from state highways and on ramps and/or off ramps.

5.0 Issue 1: Digital Signs – Minimum dwell times for digital signs

5.1 In his statement of evidence, Mr Blomfield (for OOHMAA) addresses the submission points on the minimum dwell time for images on digital signs in low-speed environments. Mr Blomfield effectively restates the request by the submitters to amend the dwell time for images on roads less than 70km/h as managed by rule SIGN-R3.1(a) as follows:

viii. In any other case, displays images for at least ~~15-10~~ 8 seconds before transitioning to the next,

5.2 I consider the provision relates to traffic safety. All digital signs require a resource consent, with the default activity status being restricted discretionary. This means that all signs require an assessment of environmental effects as part of an application for resource consent and that dwell time and its effect on traffic safety is a matter of discretion.

5.3 I do not agree with the submission points raised by OOHMAA. Mr Harries argues that available research and operational evidence do

establish that a 10 second dwell time is safer than an 8 second dwell time. Mr Blomfield argues that an 8 second dwell time is the standard operating dwell time for Digital Signs.

- 5.4 I do not dispute Mr Harries' evidence that 95% of digital signs have a dwell time of 8 seconds. However, I am not convinced of the relevance to R3.1(a)(viii). The information does not directly relate to the RMA processes.
- 5.5 I accept Council's traffic expert's (Mr Michael Smith) evidence. Mr Smith disputes Mr Harries' criticism of the evidential base for the effects of dwell time and operational evidence. He argues that there is sufficient research to indicate shorter dwell times decrease traffic safety.
- 5.6 In considering Mr Harries' further submission in light of NZTA guidance, Mr Smith notes that the minimum 8 second dwell time requested corresponds to an absolute minimum value stated in the NZTA guideline.
- 5.7 He states that:
- 5.8 *"Retaining a minimum 10 second dwell time, as currently presented in SIGN-R3.1.a establishes a consistent benchmark for assessment. Should an applicant wish to seek a lower value, mechanisms are available through the NZTA calculation to present their case for a value lower than the HCC minimum value of 10 seconds dwell time."*
- 5.9 His concern is that the effects on traffic safety are such that dwell times between 8 and 10 seconds should require the incorporation of the calculation as detailed in the NZTA document.
- 5.10 However, I accept that dwell time and traffic safety are matters that can be considered as part of a resource consent application process. I accept that 10 seconds is an appropriate threshold, the non-complying activity status clearly indicates that the effects and policies of the plan are important.

- 5.11 As a result, I recommend that the panel reject the submission point of OOHMAA to amend the minimum dwell time from 10 seconds to 8 seconds in SIGN-R3.1(a)(viii).

6.0 Issue 2: Transitional time between images

- 6.1 In his statement of evidence, Mr Blomfield (for OOHMAA) addresses the submission points on the minimum dwell time for images on digital signs in low-speed environments. Mr Blomfield effectively restates the request by the submitters to amend the cross-dissolve transitions between digital sign images and recommends the following change to rule SIGN-R3.1.
- b. Transitions between images take between ~~0.1 seconds and~~ 0.5 seconds by way of a cross-dissolve, without flashing, blinking, fading, ~~dissolving~~, or wiping,
- 6.2 I accept the technical evidence provided by the submitter. Mr Smith has reviewed this evidence provided by Mr Harries. He agrees that a cross-dissolve of 0.5 seconds is optimal for traffic safety.
- 6.3 I do have concerns that a strict limit of 0.5 seconds may be overly restrictive. I am concerned that the restriction of the rule to a narrow value does not increase the ability of sign users to gain a consent. It means that any digital sign that transitions between images by way of a dissolve, or a cross-dissolve that is not 0.5 seconds, is a non-complying activity.
- 6.4 However, given the submitter has requested a very specific timeframe for transition between images, and the technical experts agree that the amended time is effective at managing traffic safety, I recommend granting the relief sought by OOHMAA to amend SIGN-R3.1(b) by changing the minimum dissolve time from 0.1 seconds to 0.5 seconds.
- 6.5 I consider this to be a relatively minor amendment, and that the scale and significance of the amendment do not warrant a lengthy s32AA assessment.

7.0 Issue 3 - Average luminance

7.1 In his statement of evidence, Mr Blomfield (for OOHMAA) addresses the submission point that supports the deletion of Rule SIGN-R3.1(d)(iii), which limits the change in average luminance between successive images. The proposed amendment is:

~~1. Does not alter the average luminance of any two successive images by more than 30%.~~

7.2 In addition, OOHMAA seeks to replace references to average luminance with maximum luminance in SIGN-S9.1 as follows:

1. Illuminated signs, including digital signs, must not have an average maximum luminance exceeding:

7.3 Mr Blomfield recommends the deletion of the provision limiting the average luminance between images and the amendment of Light Table 3 on the basis of evidence from OOHMAA's expert witness on luminance Mr Kern.

7.4 Mr Kern's argues that there is no basis for limiting the average luminance change between successive images to 30%:

- Rule SIGN-R3.1(d)(iii) is based on AS/NZS 4282:2019, and the relevant standard has been removed from the current AS/NZS 4282:2023.
- The luminance limits in SIGN-S9.1 are generally consistent with the limits in District Plans and are an appropriate method for managing lighting.
- It is impossible to monitor average luminance given current technology.
- The current standard instead assesses internally lit and light-emitting surfaces against an absolute luminance limit measured using a full white screen.

7.5 Mr Campbell and Mr Smith are concerned that the removal of the standard relating to the change in average luminance between

images could lead to traffic safety issues, particularly in rural areas at night.

7.6 I therefore maintain my recommendation that standard SIGN-R3.1(d)(iii) is retained as notified.

7.7 Mr Kern (in his evidence for the OOMHAA) (413) and Ian Campbell (in his evidence for Council) both give the view that the reference to luminance in SIGN-S9 and LIGHT-TABLE3 should be to “maximum luminance” instead of “maximum average luminance”. “Maximum average luminance” is the term used in AS/NZS 4282:2023, from which the values are taken¹, and under which the values should be assessed in accordance with LIGHT-S6. I have no issue in itself with the recommendations of these experts but I do not see scope in the original submission or any other submissions on SIGN-S9 or LIGHT-TABLE3. I invite the Out of Home Media Association to see if scope can be found and present this at the hearing.

7.8 Therefore, I maintain my recommendation that standard SIGN-S9.1 is retained as notified.

8.0 Issue 4 - Activity status

8.1 In his statement of evidence, Mr Blomfield (for OOHMAA) addresses the submission point that supports amending the activity status for a digital sign that does not comply with Rule SIGN-R3.1 from non-complying to discretionary.

8.2 I agree with Mr Blomfield’s statement that a non-complying activity can only be granted when:

- a. The adverse effects of the activity on the environment will be minor; or
- b. The activity will not be contrary to the objectives and policies of a relevant plan and/or proposed plan.

¹ AS/NZS 4282:2023 “Control of the obtrusive effects of outdoor lighting”, Table 3.4

- 8.3 I don't agree with Mr Blomfield's assessment of the alignment of a non-complying status with SIGN-O1. He views the objective as an enabling provision and that a lack of specific direction to avoid or discourage particular types of signs means the activity status does not align with the objective.
- 8.4 In my opinion SIGN-O1 clearly outlines the dichotomy of providing for, and managing the effects of, signage. In addition, Policies SIGN-P1, SIGN-P4 and SIGN-P6 provide clear guidance for the management of signs. These policies guide rules SIGN-R1, SIGN-R3 and the SIGN standards and the assessment of resource consent application.
- 8.5 With regard to the non-complying status I consider a non-complying activity status the most efficient way of giving effect to the objective. I consider that the matters listed in Rule SIGN-R3.1 represent a threshold at which restricted discretionary controls are no longer sufficient. All digital signs require a resource consent, the proposed structure provides a clear indication where the effects, including cumulative effects may become more uncertain, more severe. For this reason the policies and objectives of the District Plan also need careful consideration.
- 8.6 It is common practice in the Wellington Region to manage digital signs in the district plan to require a resource consent for all signs. In this case the effects of digital signs are potentially significant on traffic safety and I consider a non-complying activity to be the most effective way of managing this issue.

9.0 Issue 5 – Maximum height of letters per digital sign image

- 9.1 Mr Blomfield (on behalf of OOHMAA) supports the amendment sought by OOHMAA to apply the maximum number of letters standard to the primary message only. The proposed amendment to SIGN-S8.4 is:

The primary message of sSigns within 10 metres of a legal road or visible from any State Highway must comply with the following minimum lettering heights:

- a. Contain phone numbers, email addresses, web addresses, social media handles, physical addresses (other than the address of the site on which the sign is located), or any other form of contact details, or
- b. Contain more than 40 characters.

9.2 OOHMAA argues that the amendment should be made because:

- There is no evidence to suggest there is a safety issue.
- The proposed amendments align with the NZTA Guidelines: (TCDM3 and PPM), which explicitly exclude incidental text and disclaimers from minimum font height mandates.
- The standard is impractical. Advertisements naturally rely on large text for quick comprehension; applying strict height rules to background graphics or mandatory product labelling is impractical and would vary based on sign size rather than intent.
- The standard is inefficient as it would require a resource consent for every sign with incidental text and would create unnecessary financial and administrative burdens for both applicants and the Council without providing any real safety benefit.

9.3 Mr Smith is of the opinion that advertising signs should have a 10 word count primary message, along with a 15 word count secondary message, as detailed in Section 7.7 of the NZTA Guidance. This ensures consistency with requirements of an adjacent Road Controlling Authority (NZTA) through the Hutt City Council network.

9.4 I recommend changing the rule as recommended by Mr Smith as it provides consistency with the NZTA guidance. In addition, the change would include a standard for secondary message words.

9.5 I therefore recommend that SIGN-S8.4. be amended to read:

The primary message of sSigns visible from any state highway or road with a speed limit of 80 ~~70~~ km/h or more must not:

- a. Contain phone numbers, email addresses, web addresses, social media handles, physical addresses (other than the address of the site on which the sign is located), or any other form of contact details, or
- b. Contain more than ~~40 characters~~:
 - i. 10 main message words; and
 - ii. 15 secondary message words

9.6 I consider this to be a relatively minor amendment, and that the scale and significance of the amendment do not warrant a lengthy s32AA assessment. However, I consider that the recommended amendment improves the effectiveness of the Signs chapter as the amendment corresponds with the NZTA guidelines.

10.0 Issue 6 - Provisions for higher speed traffic environments

10.1 Mr Blomfield, on behalf of (OOHMAA) seeks the rejection of the relief sought by Waka Kotahi with regard to the provisions relating to speed limits. He seeks the threshold speed of 80km/h for high speed environments.

10.2 The issue affects the following provisions.

- SIGN-P4.6 (Digital and illuminated signs)
 6. The sign is not visible from a state highway or road with a speed limit of ~~70~~ 80km/h or more.
- SIGN-R3.1(a)(iv) (Digital signs)
 - iv. Is not visible from a state highway or road with a speed limit of 80 ~~70~~km/h or more,

- SIGN-S8.4 (Signs and the transport network)

4. Signs visible from any state highway or road with a speed limit of ~~80~~ 70 km/h or more must not:

10.3 Mr Harries argues that:

- there is no probative evidence to support the proposition that signs visible from roads that operate with a speed limit higher than 70km/h, but less than 80km/h, adversely impact on road safety;
- a reduction in the speed limit threshold to 70km/h would create an inconsistency with the Wellington City 2024 District Plan that applies an 80km/h threshold; and
- a reduction in the speed limit threshold would create an inconsistency with the definitions of lower speed environments and higher speed environments in the “Digital advertising billboards and state highway road safety – Planning Policy Manual” (PPM) which refers to an 80km/h speed limit threshold.

10.4 Having reviewed Mr Harries’ evidence Mr Smith concurs with his assessment that the threshold for high speed environment should be 80km/h. He states:

“I have considered the research and the newly released NZTA Guidance. Accordingly, I have changed my opinion and consider that a high-speed environment threshold of 80 km/h as being an applicable threshold for a high-speed environment. For clarity, this threshold determination prohibits consideration of digital billboards on all roads of 80km/h and above. In practical terms, digital billboards could only be considered on roads with a posted legal speed of LESS than 80 km/h.”

10.5 Therefore, I recommend that the speed threshold for high speed environments in SIGN-P4.6, SIGN-R3(a)(iv) and SIGN-S8.4 be set at 80km/h as notified in the PDP.

11.0 Issue 7 - Visibility from state highways and on ramps and/or off ramps

11.1 Mr Harries (on behalf of OOHMAA) seeks to delete rule SIGN-R3.1(a) as follows:

xi. ~~Is not visible from, or within 100m of, a State Highway on ramp and/or off ramp.~~

11.2 I accept Mr Blomfield's argument that the section 42 report does not provide an adequate assessment of the costs and benefits, as well as the efficiency and effectiveness of the provisions relating to signs that are visible from, or within 100m of an on ramp.

11.3 Mr Harries states that there is a fundamental difficulty of establishing (in Lower Hutt's context), what constitutes an on-ramp or off-ramp given that most connections to/from SH2 occur by way of at-grade intersections. This point is opposed by Mr Smith\.

11.4 Mr Smith supports the restriction of digital signs within 100m of on and off ramps. He argues that management of on and off ramps is complex. The issue is that safety critical tasks compete with advertising signs. He considers that any form of distraction at locations of complex decision making, especially where there are vulnerable users crossing and merging, is contrary to safe use.

11.5 Mr Smith supports the provision as it relates to visibility of state highway on the basis that the high vehicle use per day and the speed limit for State Highway 2.

11.6 I concur with Mr Smith's assessment. I consider that a threshold of 100m visibility from on and off ramps and from the state highway provides for traffic safety, whilst providing for digital signs only where it can be established that the effects are minor and are not contrary to the objectives and policies of the District Plan.

11.7 I therefore recommend retaining the provision SIGN-R3.1(a)(xi) as detailed in the s42 Assessment Report.

SEAN BELLAMY

Intermediate Policy Planner

For Hutt City Council

6 October 2026

APPENDIX 1: RECOMMENDED AMENDMENTS TO PROVISIONS

This section has rules that have legal effect.

SIGN - Signs

The purpose of the Signs chapter is to provide for signs while managing their effects on the surrounding environment.

Signs and associated advertising structures are an integral and necessary part of both urban and non-urban environments. Signs promote business, community facilities, and other activities, and are useful and necessary for wayfinding and safety.

Excessive or poorly controlled signage can adversely affect amenity values and the safety of the transport network. Signs can also impact the values of the site or structure on which they are located, particularly heritage values where the sign alters or obscures heritage features of the site/structure.

Hutt City Council bylaws

- In addition to the District Plan, Council has a range of bylaws that also apply to signs, including:
- The Public Places Bylaw, which includes regulations for signs in public places, including on or over footpaths and on motor vehicles and trailers.
 - The Parks and Reserves Bylaw, which regulates activities in Council's parks and reserves, including signs, and
 - The Traffic Bylaw, which regulates signs that may cause a safety hazard, including obstruction of views for drivers.

Where a proposed sign would breach a bylaw, permission may be required from Council prior to installing the sign. Permissions under bylaws are in addition to any requirements under this District Plan.

Objectives

SIGN-O1	Signs
Signs support the needs of the community to advertise and inform while the effects on local character, amenity, heritage values and the safety and efficiency of the transport network are effectively managed.	

Policies

SIGN-P1	Signs provided for
Provide for signs where: 1. The sign: a. Is ancillary to the activity being undertaken on the site, or b. The sign is associated with an upcoming election or referendum, or c. The sign is required is required to meet regulatory or statutory requirements, or d. For any other sign (including third-party advertising signs and temporary signs for activities undertaken on another site), the sign is consistent with the purpose, character, and amenity values of the zone in which they are located, and 2. They are of an appropriate size, design and location, 3. They maintain the character and amenity values of the site and the surrounding area,	

- They do not result in visual clutter, - They do not compromise the efficiency of the transport network or the safety of its users, including cyclists and pedestrians, and - Any potential cumulative effects are managed.	
SIGN-P2	Temporary signs, including election signs
Manage the effects of election signs to be consistent with the purpose, character, and amenity values of the zone in which they are located, and: - Do not compromise the character and amenity values of any adjoining zones, - Do not result in visual clutter and other adverse cumulative effects, and - Where relevant, are in proportion to the scale of the building it is located on and the number and size of the tenancies and the size of the site.	
SIGN-P3	Third-party advertising signs
Manage the effects of third-party advertising signs to be consistent with the purpose, character, and amenity values of the zone in which they are located, and: - Where relevant, are in proportion to the scale of the building it is located on and the number and size of the tenancies and the size of the site, - Do not compromise the character and amenity values of any adjoining zones, - Do not cause areas to feel commercialised where this is not part of the intended character of the zone, and - Do not result in visual clutter and other adverse cumulative effects.	
SIGN-P4	Digital and illuminated signs
Provide for digital signs and illuminated signs where: - The sign is compatible with the character of the zone and any relevant precinct or overlay, - The sign does not compromise traffic, pedestrian, or cycling safety, - Digital signs do not cause any area to feel overly dominated by signage and advertising, - Light spill or glare effects are managed so they do not compromise amenity values, - Illumination does not compromise views of the night sky, and - The sign is not visible from a state highway or road with a speed limit of 70-80km/h or more. <u>The sign is not visible in conjunction with, or located in a manner that it may distract from, warning lights such as those at level crossings or signals associated with the operation of the rail network.</u>	
SIGN-P5	Signs on heritage buildings or heritage structures or in heritage areas
<u>Enable signs on heritage buildings, heritage structures, and within historic heritage areas where they do not detract from significant historic heritage values, having regard to:</u> <u>Any adverse effect on historic heritage values associated with the heritage building, heritage structure, or heritage area;</u> <u>Whether the sign is necessary for the activity on the site and the continued use of the of the heritage building, structure or area;</u> <u>Whether the area, height and number of signs are appropriate for the scale of the heritage building or, heritage structure or heritage area;</u> <u>The historical use of signage on the building, structure or area during the era in which it gained historical significance, and</u> <u>Alternative locations for signs.</u>	
SIGN-P6	Impacts of signs on the transport network
Ensure the safe and efficient use of the transport network by controlling: - The scale, design, and location of signs, - Proliferation of signs and visual clutter, and - The effects of illumination and digital images.	

Commented [SB1]: OOHMAA (413.4), recommendation from rebuttal (reverting back to policy as notified).

Commented [NG2]: KiwiRail (442.74)

Commented [NG3]: To be withdrawn - Outside scope of plan stop exemption

Rules

Notes:

More than one rule of this chapter may be relevant for any one sign. For example, a Third-party advertising sign that is also a Digital sign will need to comply with at least three rules — SIGN-R1: Signs, SIGN-R2: Third-party advertising signs, and SIGN-R3: Digital signs.

Resource consent may be required under rules in this chapter as well as other chapters. Unless specifically stated, resource consent is required under each relevant rule.

In particular, the rules in the Light chapter will apply to digital signs and other illuminated signs.

The steps to determine the status of an activity are set out in the General Approach chapter.

SIGN-R1	Signs
All Zones	1. Activity status: Permitted Where: a. The sign is an official sign, or b. The sign is an election sign and complies with SIGN-S7: Election signs, or c. The sign cannot be seen beyond the boundary of a site, or d. Compliance is achieved with: i. SIGN-S1: Area of a sign, ii. SIGN-S2: Combined area of signs per site, iii. SIGN-S3: Number of signs per site, iv. SIGN-S4: Height of freestanding signs, v. SIGN-S5: Height and placement of signs attached to buildings, structures and verandahs, vi. SIGN-S6: Temporary signs, vii. SIGN-S7: Election signs, viii. SIGN-S8: Signs and the transport network, and ix. SIGN-S9: Sign illumination.
All Zones	2. Activity status: Restricted discretionary Where: a. Compliance is not achieved with SIGN-R1.1. Matters of discretion are restricted to: 1. The matters of discretion in any standards not met. 2. The matters in: i. SIGN-P1: Signs provided for, ii. SIGN-P2: Temporary signs, including election signs, and iii. SIGN-P6: Impacts of signs on the transport network.
SIGN-R2	Third-party advertising signs
City Centre Zone Metropolitan Centre Zone Local Centre Zone	1. Activity status: Permitted

Commented [NG4]: Laura Skilton (314.96)

Neighbourhood Centre Zone	
Industrial Zones	
Sport and Active Recreation Zone	
Hospital Zone	
Marae Zone	
Quarry Zone	
<u>Seaview Marina Zone</u>	
Tertiary Education Zone	
Rural Zones	2. Activity status: Discretionary
Residential Zones	3. Activity status: Non-complying
Mixed Use Zone	
Natural Open Space Zone	
Open Space Zone	
SIGN-R3	Digital signs
City Centre Zone	1. Activity status: Restricted discretionary
Metropolitan Centre Zone	Where:
Local Centre Zone	a. The sign:
Industrial Zones	i. Does not flash, use video, moving images, moving text, or moving lights.
Hospital Zone	ii. Does not play music or sound.
Tertiary Education Zone	iii. Does not provide advertising over multiple messages which are displayed across transitioning screens,
	iv. Is not visible from a state highway or road with a speed limit of <u>80 km/h</u> or more,
	v. Does not monitor or respond in any way to the people viewing or potentially viewing the sign,
	vi. Displays only a single static image at a time,
	vii. Displays images for a minimum of <u>35 30</u> seconds before transitioning to the next when visible from a road with a speed limit of 80km/h or more, and

Commented [NG5]: Seaview Marina (343.53)

Commented [SB7]: OOHMAA (413.8), recommendation from rebuttal (reverting back to rule as notified).

Commented [NG8]: OOHMAA (413.10) and oOh Media (517.38)

Marae Zone Seaview Marina Zone Sport and Active Recreation Zone	viii. In any other case, displays images for at least 45 10 seconds before transitioning to the next, ix. Is not visible from, or within 100m of, a State Highway on ramp and/or off ramp. x. Is not located where there are any other digital billboards1 in a driver's field of vision. b. Transitions between images take between 0.1 seconds and 0.5 seconds by way of a cross-dissolve, without flashing, blinking, fading, dissolving, or wiping, c. In the event of a malfunction, the sign defaults to a blank screen, and d. Illumination of the sign: - Automatically adjusts to allow for ambient light levels, - Does not alter during the display of any image, - Does not alter the average luminance of any two successive images by more than 30%. Matters of discretion are restricted to: - The compatibility of the sign with the amenity and character of the surrounding area. - The size, position, design, and setting of the sign. Whether the sign will be used for third party advertising. - The standards for the relevant zone in the Light chapter. - The safety and efficiency of the transport network. - The matters in: - SIGN-P1: Compatible signs, - SIGN-P4: Digital and illuminated signs, and - SIGN-P6: Impacts of signs on the transport network. - Any positive effects of the digital sign that cannot be achieved with a sign other than a digital sign. Note: The provisions in the Light chapter also apply to signs, particularly digital signs or other illuminated signs.
City Centre Zone Metropolitan Centre Zone Local Centre Zone Industrial Zones Hospital Zone Tertiary Education Zone Marae Zone Sport and Active	2. Activity status: Non-complying Where: Compliance is not achieved with SIGN-R3.1

Commented [NG9]: OOHMAA (413.10) and oOh Media (517.38)

Commented [NG6]: Seaview Marina (343.54)

Commented [NG10]: Waka Kotahi (385.84)

Commented [SB11]: OOHMAA (413.11), recommendation from rebuttal

Commented [NG12]: OOHMAA (413.11)

Commented [NG13]: OOHMAA (413.13) and oOh Media (517.40)

Recreation Zone	
Residential Zones Rural Zones Mixed Use Zone Natural Open Space Zone Open Space Zone	3. Activity status: Non-complying Notification: Public notification is required for applications under this rule.
SIGN-R4	Signs on sites with scheduled heritage buildings, heritage structures, or sites within a heritage area
- Sites containing Heritage buildings and structures Heritage areas	1. Activity status: Permitted Where: a. The is not attached to a heritage building, heritage structure, or contributing building in a heritage area unless: i. The sign is an official sign, for wayfinding, interpretative content about the historic heritage values, the name of the building or structure, or consists only of text and relates to an activity within that building or structure, and ii. Does not exceed 0.5m² in area. b. Despite a, any existing sign may be replaced with another sign of the same size, and location, but different wording and imagery. c. Any advertising sign does not obscure the visibility of any architectural feature of a heritage building or heritage structure from the road.
- Sites containing Heritage buildings and structures - Heritage areas	2. Activity status: Restricted discretionary Where: a. Compliance is not achieved with SIGN-R5.1. Matters of discretion are restricted to: 1. The heritage values of the scheduled heritage building, scheduled heritage structure, or historic heritage area. 2. Providing for the continued use of the scheduled heritage building, scheduled heritage structure, or identified contributing building. 3. The historical use of signage on the building or structure during the era in which it acquired heritage significance.

Commented [NG14]: To be withdrawn - Outside scope of plan stop exemption

Standards

SIGN-S1	Area of a sign
Residential Zones	1. No one sign may be larger than 2m ² . Matters of discretion if the standard is not met: 1. The size, location, height, and design of the sign. 2. Impacts on the character and visual amenity of the surrounding area.

	- How the sign fits with the design and proportions of the building it is placed on (if placed on a building). - Cumulative effects. - Any positive effects that cannot be achieved while complying with the standard.
City Centre Zone Metropolitan Centre Zone Local Centre Zone Neighbourhood Centre Zone Industrial Zones Marae Zone Seaview Marina Zone	- No freestanding sign may be larger than 20m². - No sign on a building may be larger than 30% of the area of the exterior wall to which it is attached. Matters of discretion if the standard is not met: - The size, location, height, and design of the sign. - Impacts on the character and visual amenity of the surrounding area. - How the sign fits with the design and proportions of the building it is placed on (if placed on a building). - Cumulative effects. - Any positive effects that cannot be achieved while complying with the standard,
Hospital Zone Tertiary Education Zone Quarry Zone	- No one sign may be larger than 5m². Matters of discretion if the standard is not met: - The size, location, height, and design of the sign. - Impacts on the character and visual amenity of the surrounding area. - How the sign fits with the design and proportions of the building it is placed on (if placed on a building). - Cumulative effects. - Any positive effects that cannot be achieved while complying with the standard.
Mixed Use Zone Open Space and Recreation Zones Rural Zones	- No one sign may be larger than 4m². Matters of discretion if the standard is not met: - The size, location, height, and design of the sign. - Impacts on the character and visual amenity of the surrounding area. - How the sign fits with the design and proportions of the building it is placed on (if placed on a building). - Cumulative effects. - Any positive effects that cannot be achieved while complying with the standard.
SIGN-S2	Combined area of signs per site
Residential Zones	- The maximum total area of signs per site (other than official signs, temporary signs and election signs) is 2m². Matters of discretion if the standard is not met: - The size, location, height, and design of the sign. - Impacts on the character and visual amenity of the surrounding area. - How the sign fits with the design and proportions of the building it is placed on (if placed on a building). - The reduced efficacy of signs from clutter. - Cumulative effects.

	6. Any positive effects that cannot be achieved while complying with the standard.
Commercial and Mixed Use Zones Industrial Zones Seaview Marina Zone Marae Zone	2. The maximum total area of signs per site (other than official signs, temporary signs and election signs) is 20m ² . 3. The maximum total area of signs on any one exterior wall of a building must not exceed 30% of the area of that wall. Matters of discretion if the standard is not met: 1. The size, location, height, and design of the sign. 2. Impacts on the character and visual amenity of the surrounding area. 3. How the sign fits with the design and proportions of the building it is placed on (if placed on a building). 4. The reduced efficacy of signs from clutter. 5. Cumulative effects. 6. Any positive effects that cannot be achieved while complying with the standard.
Hospital Zone Tertiary Education Zone Quarry Zone	4. The maximum total area of signs per site (other than official signs, temporary signs and election signs) is 20m ² . Matters of discretion if the standard is not met: 1. The size, location, height, and design of the sign. 2. Impacts on the character and visual amenity of the surrounding area. 3. How the sign fits with the design and proportions of the building it is placed on (if placed on a building). 4. The reduced efficacy of signs from clutter. 5. Cumulative effects. 6. Any positive effects that cannot be achieved while complying with the standard.
Open Space and Recreation Zones Rural Zones	5. The maximum total area of signs per site (other than official signs and election signs) is 4m ² . Matters of discretion if the standard is not met: 1. The size, location, height, and design of the sign. 2. Impacts on the character and visual amenity of the surrounding area. 3. How the sign fits with the design and proportions of the building it is placed on (if placed on a building). 4. The reduced efficacy of signs from clutter. 5. Cumulative effects. 6. Any positive effects that cannot be achieved while complying with the standard.
SIGN-S3	Number of signs per site
Residential Zones Rural Zones	1. There must be no more than one sign per site (other than official signs and temporary signs). Matters of discretion if the standard is not met: 1. The size, location, height, and design of the sign. 2. Impacts on the character and visual amenity of the surrounding area. 3. How the sign fits with the design and proportions of the building or structure it is placed on (if placed on a building/structure). 4. Impacts on the safety and efficiency of the transport network. 5. The reduced efficacy of signs from clutter. 6. Cumulative effects. 7. Any positive effects that cannot be achieved while complying with the standard.

Commercial and Mixed Use Zones Industrial Zones Seaview Marina Zone	2. There may be no more than one sign per site per frontage (other than official signs and temporary signs) where that frontage is opposite a site in a Residential Zone, Rural Zone, Open Space and Recreation Zone, or the Marae Zone. Matters of discretion if the standard is not met: 1. The size, location, height, and design of the sign. 2. Impacts on the character and visual amenity of the surrounding area. 3. How the sign fits with the design and proportions of the building or structure it is placed on (if placed on a building/structure). 4. Impacts on the safety and efficiency of the transport network. 5. The reduced efficacy of signs from clutter. 6. Cumulative effects. 7. Any positive effects that cannot be achieved while complying with the standard.
Hospital Zone Tertiary Education Zone Quarry Zone Marae Zone	3. There may be no more than two signs per site frontage. For corner sites, each side of the corner counts as a separate frontage. Matters of discretion if standard is not met: 1. The size, location, height, and design of the sign. 2. Impacts on the character and visual amenity of the surrounding area. 3. How the sign fits with the design and proportions of the building or structure it is placed on (if placed on a building/structure). 4. Impacts on the safety and efficiency of the transport network. 5. The reduced efficacy of signs from clutter. 6. Cumulative effects. 7. Any positive effects that cannot be achieved while complying with the standard.
Open Space and Recreation Zones	4. There may be no more than one sign per 50 metres of site frontage, rounded up. Matters of discretion if the standard is not met: 1. The size, location, height, and design of the sign. 2. Impacts on the character and visual amenity of the surrounding area. 3. How the sign fits with the design and proportions of the building or structure it is placed on (if placed on a building/structure). 4. Impacts on the safety and efficiency of the transport network. 5. The reduced efficacy of signs from clutter. 6. Cumulative effects. 7. Any positive effects that cannot be achieved while complying with the standard.
SIGN-S4	Height of freestanding of signs
Residential Zones Open Space and Recreation Zones	1. A freestanding sign must not exceed 3 metres in height above ground level. Matters of discretion if the standard is breached: 1. The size, location, height, and design of the sign. 2. Impacts on the character and visual amenity of the surrounding area. 3. Cumulative effects. 4. Any positive effects that cannot be achieved while complying with the standard.
City Centre Zone Metropolitan Centre Zone	2. A freestanding sign must not exceed 10 metres in height, or the highest point of the highest building on site, whichever is the lower. 3. Where there is no building, must not exceed 6 metres in height. Matters of discretion if the standard is breached: 1. The size, location, height, and design of the sign.

Local Centre Zone Neighbourhood Centre Zones Industrial Zones Seaview Marina Zone	2. Impacts on the character and visual amenity of the surrounding area. 3. Cumulative effects. 4. Any positive effects that cannot be achieved while complying with the standard.
Mixed Use Zone Hospital Zone Tertiary Education Zone Quarry Zone Marae Zone Mixed Use Zone Rural Zones	4. A freestanding sign must not exceed 6 metres in height. Matters of discretion if the standard is breached: 1. The size, location, height, and design of the sign. 2. Impacts on the character and visual amenity of the surrounding area. 3. Cumulative effects. 4. Any positive effects that cannot be achieved while complying with the standard.
SIGN-S5	Height and placement of signs attached to buildings, structures and verandahs
Residential Zones Rural Zones Open Space and Recreation Zones Quarry Zone Marae Zone	1. A sign must not be located on the roof of any building or on top of any other structure unless the structure is a support structure constructed for the purpose of supporting the sign. 2. A sign must not be higher than the eaves of the building it is attached to. For facades without eaves, a sign must not project higher than the highest part of the facade it is attached to. 3. Where signs are attached to a verandah they must be: a. Attached to the fascia or underside of the verandah, b. Have no more than one sign per tenancy, and c. If above a footpath or public space, the lowest point of any sign must be at least 2.4 metres clear in height above the footpath/public space. Matters of discretion if the standard is breached: 1. The size, location, height, and design of the sign. 2. Impacts on the character and visual amenity of the surrounding area. 3. How the sign fits with the design and proportions of the building it is placed on. 4. Impacts on the safety and efficiency of the transport network. 5. The reduced efficacy of signs from clutter. 6. Cumulative effects. 7. Any positive effects that cannot be achieved while complying with the standard.
Commercial and Mixed Use Zones Industrial Zones	4. A sign must not be located on the roof of any building or on top of any other structure unless the structure is a support structure constructed for the purpose of supporting the sign.

Hospital Zone Tertiary Education Zone Seaview Marina Zone	- A sign must not project higher than the highest part of the building or structure it is attached to unless the structure is a support structure constructed for the purpose of supporting the sign. - Where signs are attached to a verandah they must be: - Attached to the fascia or underside of the verandah, - Have no more than one sign per tenancy, and - If above a footpath or public space, the lowest point of any sign must be at least 2.4 metres clear in height above the footpath/public space. Matters of discretion if the standard is breached: - The size, location, height, and design of the sign. - Impacts on the character and visual amenity of the surrounding area. - How the sign fits with the design and proportions of the building it is placed on. - Impacts on the safety and efficiency of the transport network. - The reduced efficacy of signs from clutter. - Cumulative effects. - Any positive effects that cannot be achieved while complying with the standard.
SIGN-S6	Temporary signs
All Zones	- A temporary sign must not be displayed more than 7 days 3 months prior to the event or activity the sign is advertising. - A temporary sign must be removed within 48 hours 7 days of the completion or cancellation of the event or activity the sign is advertising. - The sign must be no greater than 3m² in area. - This standard does not apply to election signs. Matters of discretion if the standard is breached: - The size, location, height, and design of the sign. - Impacts on the character and visual amenity of the surrounding area. - How the sign fits with the design and proportions of the building or structure it is placed on (if placed on a building/structure). - The reduced efficacy of signs from clutter. - Cumulative effects. - Any positive effects that cannot be achieved while complying with the standard.
SIGN-S7	Election signs
All Zones	- Election signs must not be displayed more than nine weeks before the day of the election or referendum with which they are associated. - Election signs must be taken down before the day of the election or referendum with which they are associated. - Election signs must not exceed 3m² in area. Matters of discretion if the standard is breached: - The size, location, height, and design of the sign. - Impacts on the character and visual amenity of the surrounding area. - How the sign fits with the design and proportions of the building or structure it is placed on (if placed on a building/structure). - Impacts on the safety and efficiency of the transport network. - The reduced efficacy of signs from clutter. - Cumulative effects.
SIGN-S8	Signs and the transport network

Commented [NG15]: Waka Kotahi (385.89)

All Zones	- Signs must not obstruct the line of sight of any corner, bend, intersection, vehicle crossing, <u>pedestrian crossing</u> or railway crossing. - Signs must not obstruct or obscure the view of any traffic sign, railway sign, traffic signal, or railway signal. - Signs visible from any road must not contain any flashing or moving lights or moving parts. <u>The primary message of signs</u> visible from any state highway or road with a speed limit of <u>80-70</u> km/h or more must not: - Contain phone numbers, email addresses, web addresses, social media handles, physical addresses (other than the address of the site on which the sign is located), or any other form of contact details, or - Contain more than <u>40 characters</u>: <u>10 main message words</u>; and <u>15 secondary message words</u> - Signs must not be shaped or use wording, images, or colours, that could be mistaken for a traffic control device, official sign, railway sign, maritime navigation installation, or aeronautical navigation installation. - Signs within 10 metres of a legal road or visible from any state highway must comply with the following minimum lettering heights: <table border="1" data-bbox="284 909 1069 1106"> <thead> <tr> <th>Speed limit of road (km/h)</th><th>Minimum lettering height (mm)</th></tr> </thead> <tbody> <tr> <td>0-50</td><td>150</td></tr> <tr> <td>51-70</td><td>200</td></tr> <tr> <td>71-80</td><td>250</td></tr> <tr> <td>81 and above</td><td>300</td></tr> </tbody> </table> <u>Any digital sign must not be able to be read in conjunction with flashing warning lights at level crossings or signals associated with the operation of the rail network.</u> This does not apply to authorisation statements on election signs or statements about the status of trademarks. Matters of discretion if the standard is breached: - Impacts on the safety and efficiency of the transport network. - Impacts on visual amenity for users of the transport network.	Speed limit of road (km/h)	Minimum lettering height (mm)	0-50	150	51-70	200	71-80	250	81 and above	300
Speed limit of road (km/h)	Minimum lettering height (mm)										
0-50	150										
51-70	200										
71-80	250										
81 and above	300										
SIGN-S9	Sign illumination										
All Zones	- Illuminated signs, including digital signs, must not have an <u>average maximum</u> luminance exceeding: - The limits in table LIGHT-TABLE3 during the restricted lighting period, 600cd/m² outside the restricted lighting period but after sunset or before sunrise, and 5,000cd/m² between sunrise and sunset. - Illumination of any sign must not result in the illuminance of any roadway by more than 4 lux in a Residential Zone, Rural Zone, Open Space Zone, or Natural Open Space Zone, or 20 lux in any other area. Matters of discretion if the standard is breached: - The size, location, height, and design of the sign. - Impacts on the character and visual amenity of the surrounding area.										

Commented [NG16]: Laura Skelton (314.107)

Commented [SB17]: OOHMAA (413.22), recommendation from rebuttal

Commented [SB18]: OOHMAA (413.20), recommendation from rebuttal (reverting back to standard as notified).

Commented [SB19]: OOHMAA (413.22), recommendation from rebuttal

Commented [NG20]: KiwiRail (442.77)

	3. Any unreasonable annoyance, discomfort, distraction, or interference with everyday tasks from light spill, including disturbance of people's sleep. 4. Impacts on the safety and efficiency of the transport network. 5. Impacts on views of the night sky. 6. Any positive effects that cannot be achieved while complying with the standard.
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Definitions

Term	Definition
digital sign	means a sign which displays electronic graphics and/or text using electronic screens. Digital signs can include both moving and static signage.
official sign	means all any signs required or provided for under any statute or regulation, or are otherwise related to aspects of public safety.

Commented [NG21]: Waka Kotahi (385.6)

Commented [NG22]: Waka Kotahi (385.14)

APPENDIX 2: Statement of evidence of Michael Smith

IN THE MATTER

of the Resource Management
Act 1991

AND

IN THE MATTER

of hearing of a submission
and further submission lodged
by the **OUT OF HOME
MEDIA ASSOCIATION OF
AOTEAROA** in respect of the
'Signs' Chapter of the
**PROPOSED LOWER HUTT
DISTRICT PLAN 2025**

STATEMENT OF EVIDENCE OF MICHAEL SMITH

INTRODUCTION, QUALIFICATIONS AND EXPERIENCE

- 1 My full name is Michael Andrew Smith.
- 2 I hold the position of Senior Principal Transportation Engineer and Australasia Road Safety Practice Lead, at Stantec, who I have been with since 1996. Prior to my current role, I held the position of Senior Road Safety Engineer at MWH Global for 12 years from 1984 to 1996.
- 3 I hold a Master of Engineering in Transportation from the University of Canterbury. I am a Fellow of Engineering New Zealand, a Technical Area Assessor (Transportation) for Engineering New Zealand, and a Registered Professional Engineer Queensland. I am a certified Senior Road Safety Auditor in Queensland. I have written the Road Safety Audit Guidelines for Tonga, Fiji, and Brunei, and trained Government and Consulting staff in these countries.
- 4 I have over 35 years' experience in road safety, traffic control, health and safety, safety inspections, safety audits, crash reduction studies, traffic engineering, maintenance contract and construction projects. I am an international expert in Road Safety. I am an ICA CPTED Practitioner.
- 5 I have been an expert witness for the Coronial Courts, assisting the Coroner in fatal crash hearings. I regularly undertake fatal and serious crash investigations for road controlling authorities across New Zealand.
- 6 I have undertaken reviews of the Transport and associated chapters for Local Authority Plan Changes, undertaking reviews of submitters material, and informing council staff and the hearings panel of my findings.

CODE OF CONDUCT

- 7 Although this is a council hearing, I have read the Code of Conduct for Expert Witnesses in the Environment Court Practice Note 2023. I have complied with the Code of Conduct when preparing my written report and I agree to comply with it when I give any oral evidence.

- 8 I confirm that I have considered all the material facts that I am aware of that might alter or detract from the opinions that I express, and that this report covers matters within my area of expertise, except where I state that I am relying on the reports and/ or views of another person.

INVOLVEMENT & BACKGROUND

- 9 I have been engaged by Hutt City Council since 2026 to advise transportation matters as they relate to the SIGNS chapter, associated with the proposed district plan including a technical review of the relief sought by submitters on the SIGNS chapter.
- 10 Have considered the relevant submissions as presented and detailed by Hutt City Council staff.
- 11 Have not considered changes to Activity Status. I defer the assessment of Activity Status to Council Planners

SCOPE OF EVIDENCE

- 12 My evidence primarily covers further submissions made on the SIGNS chapter by Mr Brett Harries on behalf of **OUT OF HOME MEDIA ASSOCIATION OF AOTEAROA**, with matters pertaining to Digital Billboards.
- 13 I further respond to additional submissions made by Mr Russ Kern on behalf of **OUT OF HOME MEDIA ASSOCIATION OF AOTEAROA**, with matters pertaining to lighting of Digital Billboards.
- 14 Where required, I have sought technical expert guidance from a Lighting expert and have considered their assessment in my evidence. This advice is attached in Appendix A
- 15 My evidence does not respond to or assess all submissions under each of the chapters, where I have instead focused on areas where I consider further assessment has been warranted to assist the panel.

CHANGES SINCE MY PREVIOUS EVIDENCE

- 16 My previous evidence was submitted on 10 September 2026. I was notified after submission of my evidence that the New Zealand Transport Agency (NZTA) had released their final version of their document "Digital advertising billboards and state highway road safety policy", Planning Policy Manual; September 2026.
- 17 I have considered my previously submitted material, and considered the further position of submitters, in relation to the content of the NZTA document. Where applicable, I have reassessed my position to matters raised, and comment regarding this new material applied by NZTA.

RESPONSE TO REBUTTAL EVIDENCE OF MR B HARRIES

- 18 I have read the evidence of Mr Harries and respond to the following matters to assist the hearing.

Crash Database

- 19 In section 2.1 of the executive summary of Mr Harries evidence, he *states “..yet there is not a single recorded crash that has been attributed to a digital sign, nor a single known site where the presence of a digital sign has adversely impacted on the road safety performance of that site in any identifiable manner.”*
- 20 I respond to this statement with the following comments.
- 21 The New Zealand Crash Analysis System (CAS) is a central database of crashes either attended in person by Police, or of crashes notified by Police, but not attended by Police. Data entry is undertaken from the records of the Police as a result of their investigations and enquiries.
- 22 The Police evidence is a collection of factual information assessed by the officer on scene (where attended) and statements of parties involved. Thus, the officer is reliant on the evidence of parties to the crash.
- 23 This material is coded into CAS, with a brief summary of crash data recorded.
- 24 In my experience undertaking fatal and serious crash investigations, along with personal experience in crashes, the statements collected by the Police are recorded as a verbatim summary of the parties.
- 25 A driver may choose not to make comment that they were distracted by objects outside of the vehicle, as this may affect their liability regarding their actions being causative, or contributing to the crash. They may further decline to admit distraction as it may materially affect their insurance claim, with potential to identify them as a cause to the crash.
- 26 The Police crash form has a general field for “distraction”, should the office consider that there is sufficient evidence of such. The Police form relies on an officer drawing a site layout diagram, a task that should include all key site features. Sadly, most site diagrams are simplistic and fail to identify surrounding features adjacent to the road.
- 27 As evidence of the lack of information, I was personally involved in a crash between myself, on a road bicycle, and a car. As a result of the crash, I was injured and received hospital attendance. I was interviewed by Police, and I specifically requested the investigating officer to record that my helmet had been destroyed as a result of the crash. An inspection of the CAS record for my crash revealed a total lack of mention of a destroyed helmet condition and an absence of head injury. Therefore, an analysis of crash information for helmet use would have revealed a negative return as that element was not recorded.
- 28 I do not contest Mr Harries statement regarding his research into crash records. However, I do make the statement that “*absence of evidence is not evidence of absence*”. Failure to capture distraction information through investigations will result in a lack of information from which a detailed analysis could be undertaken.

SAFE SYSTEM ASSESSMENT

- 29 To assist the Commissioners, I wish to outline the changes within best practice for road safety in New Zealand.

- 30 Historically, practitioners have relied upon crash history to inform road safety. This process considers historic trends and does not consider future conditions.
- 31 New Zealand adopted the Safe Systems approach for road safety assessment (August 2022). This was incorporated into the Guidelines for Safe System Auditing¹, along with the adoption of the Safe System Assessment Framework².
- 32 A safe system assessment is a proactive evaluation of how well a road design or network aligns with principles to eliminate fatal and serious injuries, whereas an examination of historic crash records is a reactive review of past actual accidents at specific locations.
- 33 The Safe System assessment framework considers and quantifies the degree of alignment of a proposed feature, design or concept with Safe System principles with the objective of minimising death and serious injury. A Safe System is a forgiving road system that takes human fallibility and vulnerability into account. Under a Safe System we design the whole transport system to protect people from exposure to high crash forces that lead to death and serious injury.
- 34 The safe system considers the likelihood of a crash occurring, and the potential injury that would result should that crash type occur. A quantitative scale for crash frequency as an indicator of probability is detailed in Table 1 below.

Table 1. Crash frequency as an indicator of probability

Crash Frequency	Crash Probability
Multiple crashes (more than one per year)	Very likely
1 every 1 to 5 years	Likely
1 every 5 to 10 years	Unlikely
Less than 1 every 10 years	Very unlikely

- 35 It is my professional opinion that reliance on historic crash data alone does not consider the effects of a new digital billboard at a location where there had not been one prior to the application.

RULE SIGN-R3.1 A) – DWELL TIME

- 36 Mr Harries evidence seeks a modified minimum dwell time of 8 seconds on lower speed roads, with a minimum dwell time of 30 seconds on higher speed roads.
- 37 I note that the minimum 8 second dwell time requested corresponds to an ABSOLUTE MINIMUM value stated in the NZTA guideline. It is noted that the NZTA guideline provides further guidance through a calculation that considers site factors.
- 38 In my previous assessment, I had reviewed the stated policy in SIGN-R3 and had considered the evidence of submitters requesting a minimum value of 8 seconds. I had concluded that there was evidence to support a value less than the stated 15 seconds. I accordingly proposed a minimum value of 10 seconds.

¹ <https://www.nzta.govt.nz/assets/resources/road-safety-audit-procedures/docs/safe-system-audit-guidelines.pdf>

² Research Report AP-R509-16_Safe_System_Assessment_Framework

- 39 I note that AS/NZS 4282: 2019, Section 3.3.5.4 specifically states a dwell time of 10 seconds or more. My position of 10 seconds dwell time is consistent with AS/NZS 4282: 2019.
- 40 In considering Mr Harries further submission, and considering the NZTA guidance, I make the following comments:
- (a) Retaining a minimum 10 second dwell time, as currently presented in SIGN-R3.1.a establishes a consistent benchmark for assessment. Should an applicant wish to seek a lower value, mechanisms are available through the NZTA calculation to present their case for a value lower than the HCC minimum value of 10 seconds dwell time, but not lower than 8 seconds as an absolute minimum.
 - (b) Should the panel be of a mind to adopt an absolute minimum value of 8 seconds, then I contest that this must only be done through the incorporation of the calculations as detailed in the NZTA document.

Standard SIGN-S8 6)

Letter Height requirements

- 41 In Section 2.7 of Mr Harries evidence, he presents that letter height requirements should only apply to the primary message within an image, and not to all text within an image.
- 42 I comment that there are two elements to text content on a display. These are Word Count (or number of characters), and letter height. Both form the “content” message of a display.
- 43 The HCC requirement (Rule SIGNS-S8 4) b) states “Must not...b) contain more than 40 characters. This requirement does not specify a word count.
- 44 The NZTA Guidance requires a 10 word primary message count, with a 15 word secondary message count. This requirement does not specify a character count.
- 45 Examples of a sample of displays on a digital billboard are supplied below. I have specified word count and character count for each image to demonstrate differences. For the purpose of this demonstration, I have excluded disclaimers and logos.



Image 1`

Total Word Count: 6
 Primary Text word count: 3
 Secondary Text word count: 4
 Character Count: 43



Image 2

Total Word Count: 12
 Primary Text word count: 7
 Secondary Text word count: 5
 Character Count: 55



Image 3

Word Count: 44
 Primary Text word count: 4
 Secondary Text word count: 40
 Character Count: 216

- 46 As demonstrated, Image 1 meets both primary and secondary word count and character count requirements. Image 2 meets both primary and secondary word count, exceeds character count requirements. Image 3 Meets Primary Message word count, exceeds secondary message word count and exceeds character count.

- 47 It is noted that in image 3, the font size of the secondary messages is highly variable, resulting in a complex message for the driver.
- 48 The NZTA Guidance is specific on word counts for both the primary and secondary word content. Mr Harries requests consistency between documents. In this I concur. NZTA Guidance is clear on word count, and SIGNS S8 should be consistent.
- 49 Section 6.4 of the Traffic Control Devices Manual, Part 3; Advertising signs provides details of font size for the posted speed limit. Table 6.2 states the minimum letter size for the main message and the secondary message.
- 50 I note that the position presented by Mr Harries as having control on the primary message only would restrict any further control on secondary message content. In this instance, considering the primary message control only, a layout similar to Image 3 would be permissible.
- 51 I affirm my position that advertising signs should have a 10 word count primary message, along with a 15 word count secondary message, as detailed in Section 7.7 of the NZTA Guidance. This ensures consistency with requirements of an adjacent Road Controlling Authority (NZTA) through the Hutt City Council network.

LOGOS

- 52 Mr Harries (Section 2.7) presents that logos, terms and conditions, legal and medical disclaimers should be excluded. He finally presents that the policy as stated would be inconsistent with the NZTA Guidelines.
- 53 The NZTA Guidelines Section 7.7, states *“The main and secondary word limits outlined above exclude legal disclaimer text or text forming part of logos, symbols, brand marks or product images, if that text is incidental and is not intended to be read by drivers as part of the advertisement. Where disclaimer text is included, it should be visually subordinate and should not form part of the primary or secondary message.”*
- 54 In Section 2.12 of Mr Harries evidence, he contests NZTA’s position on logos *“[2.12 (b)].... in relation to NZTA’s recommended exclusion of logos from images, for the reasons that:*
- i. there is no credible basis for that exclusion, as logos do not place demands on a road user’s attention as might potentially be the case with the contact details that the remainder of the standard refers to;*
 - ii. logos actually assist in the quick and easy identification of an organisation or product (hence their frequent use on NZTA signs); and*
 - iii. the exclusion of logos is not something that is sought in either the TCDM3 or the PPM.”*
- 55 I note that the NZTA guidance relates to logos, text, disclaimers etc being *incidental and subordinate* to the main message.
- 56 I concur with Mr Harries that advertisers rely on their logo as being fundamental to their image. An example is the “Golden Arches” logo utilised by McDonalds TM.

57 My previous assessment determined that the restriction of logos on the main panel of the image would be unworkable. I further concluded that a single logo on the main panel would be acceptable. I remain of that position.

Rule SIGN-R3.1 b) – Cross-Dissolve Transitions

58 In Section 2.6 of Mr Harries evidence, he presents that the cross-dissolve transition time should be set at 0.5 seconds.

59 I concur with this position.

Rule SIGN-R3.1)a ix – Exclusion of signs that are visible from, or within 100m of an on-ramp or off-ramp

60 Mr Harries, in section 2.10 c), states that he rejects NZTA's *position "In relation to NZTA's recommended exclusion of signs from on-ramps and off-ramps, for the reasons that:*

- (i) *there is a fundamental difficulty of establishing (in Lower Hutt's context), what constitutes an on-ramp or off-ramp given that most connections to/from SH2 occur by way of at-grade intersections;*

61 The Britannica Dictionary defines an off-ramp as: *a short road that is used to gradually slow down after leaving a highway.* An on-ramp is defined as being: *a short road that is used for driving onto a highway.*

62 Considering the Hutt City Council network, and the interface with the State Highway system, it is noted that many major interchanges and connections are at grade (same level) with the State Highway. Examples include Melling Link (plans for grade separated), Major Drive, Fairway Drive, Fergusson Drive.

63 I have lead road safety audits and safe system audits of intersections on SH2, and have undertaken on-site observations of the intersections, including usage by all user classes.

64 I comment that major junctions such as those listed above facilitate the movement of pedestrians, including elderly and children, cyclists and other vulnerable users. Movement is facilitated at the junctions through a series of on-road and off-road facilities, with crossing of the roads enabled through signalised controls and passive controls over slip lanes. Cyclists are directed at major intersections to either diverge from a minor road onto facilities, or merge from a separated facility to on-road when transitioning to a side road.

65 The interchanges are complex, with drivers diverging or merging, with attention that should be directed to crossing and turning traffic, and the installed intersection controls. The interchanges are also areas where the interaction of vulnerable users occur.

66 Research undertaken by Hinton et al (2022)³ discussed Road Traffic Environment. In this research a citation was made to Rempel et al (2013), that examined the variables within the road environment.

67 Rempel et al. (2013) contend that variables such as road geometry, the complexity of driving demands (high-risk environments such as intersections and interchanges) and other

³Hinton et al (2022): *A novel conceptual framework investigating the relationship between roadside advertising and road safety: The driver behaviour and roadside advertising conceptual framework* *Transportation Research Part F: Psychology and Behaviour* 85 (2022) 221–235

operational aspects (including traffic volumes, speed limits and the type of vehicle being used), may compete with safety-critical tasks around roadside advertising signs.

- 68 From a road safety perspective, I consider that any form of distraction at locations of complex decision making, especially where there are vulnerable users crossing and merging, is contrary to safe use. A momentary lapse of attention will result in serious, if not fatal consequences should a driver strike a vulnerable user at on and off-ramps.
- 69 I support the position of NZTA, where digital billboards should be restricted from being within 100m of an on-ramp or off-ramp.

Rule SIGNS-R3.1 a) x - Visibility of Signs from State Highway

- 70 At Section 2.10 (c) ii) Mr Harries states that he rejects the rule that requires exclusion of signs that may be visible contemporaneously with another sign.
- 71 It is noted that as a separate road controlling authority, NZTA has specific conditions and rules regarding signs within the state highway corridor, and visible from the state highway corridor.
- 72 The NZTA Guidelines for Digital advertising billboards and state highway road safety, along with the Planning Policy Manual (Third party signs on and visible from the state highway corridor, November 2023) specifically outline NZTA's position on
- 73 Waka Kotahi manages third party signs within the state highway corridor primarily through the NZ Transport Agency (signs on state highways) Bylaw 2010 (Signs Bylaw).
- 74 The third-party signs guideline states "Waka Kotahi will not support general advertising signs (i.e. for commercial marketing of products or services) directed at drivers on the State Highway network where they are located adjacent to state highways where the AADT (Annual Average Daily Traffic) is greater than 10,000 VPD (Vehicles Per Day) and speeds are also greater than 70 km/h."
- 75 SH 2 has an Average Daily Traffic (ADT) count of approximately 15 - 20,000 vehicle per day (vpd). This is in excess of the stated minimum of 10,000 vpd stated within the NZTA third-party signs guidelines. The legal speed limit exceeds 70 km/h.
- 76 The proposed rule (R3.1 a) x) establishes a threshold for the purpose of the application, that is consistent with the requirements for NZTA's Planning Policy Manual.
- 77 I am aware that a digital billboard requires an application for a Resource Consent. I am further aware that under the requirements for a resource consent, and applicant must undertake an assessment of the effects of the digital billboard on user safety, amongst other requirements. I defer to Councils Planners to outline the exact mechanisms and requirements for this..

Policy SIGN-P4

- 78 In Section 2.8 of Mr Harries evidence, he presents that the speed limit threshold for higher speed roads should be set at 80 km/h. He further presents that "*..there is no probative evidence to support the proposition that signs visible from roads that operate with a speed limit higher than 70km/h, but less than 80km/h, adversely impact on road safety.*"

- 79 In understanding this statement, I make the following comments.
- (a) Mr Harries uses the term “higher than 70km/h, but less than 80km/h”.
 - (b) I note that the recently released NZTA Digital Billboard Guidance states a threshold LESS than 80 km/h as a description of a lower speed environment (Section 7). It further states that a high-speed environment is 80km/h and above.
 - (c) My assessment on threshold states that a high-speed environment be equal to, or greater than 70km/h
- 80 I have considered the recently released NZTA guidance for Digital Billboards, and the position of Mr Harries, especially considering consistency.
- 81 With respect to the threshold value, I make comment that this value, as stated in the NZTA guidance, is derived from the Elvik’s Exponential Model, (Elvik, R. (2019). “A comprehensive and unified framework for analysing the impacts on traffic injury of measures influencing speed.” Accident Analysis & Prevention, 125, 63–69). This recognises that crash risk increases exponentially as operating speed increases. The model relates to crash risk rather than billboard distraction.
- 82 The model provides a useful calibration basis for recognising that higher-speed environments are less forgiving and less tolerant of driver distraction. For the purposes of this [NZTA] guidance, the serious injury coefficient has been used as the reference point, reflecting the Safe System focus on death and serious injury while avoiding an overly conservative fatal-crash calibration. On that basis, the adjustment increases more strongly in the 70–80 km/h band.
- 83 *Rempel et al. (2013)*⁴ contends that variables such as road geometry, the complexity of driving demands (high-risk environments such as intersections and interchanges) and other operational aspects (including traffic volumes, speed limits and the type of vehicle being used), may compete with safety–critical tasks around roadside advertising signs.
- 84 The NZTA guidance specifically states in Table 2 (pg 13) that *“Digital billboards in environments operating at 80 km/h and above will not be supported by NZTA when visible, legible and directed towards the state highway.”*
- 85 This results in a policy where digital billboards will be considered for assessment on roads equal to, or less than, 70 km/h. This specifically excludes roads of 80 km/h or above.
- 86 As speed limits are posted in values of whole numbers (50 / 60 / 70 / 80 / 90 / 100 / 110 etc), a policy requirement of 70 km/h or less is consistent with the NZTA Guideline as being permissible for a low-speed environment.
- 87 I have considered the research and the newly released NZTA Guidance. Accordingly, I have changed my opinion and consider that a high-speed environment threshold of 80 km/ as being an applicable threshold for a high-speed environment. For clarity, this threshold determination prohibits consideration of digital billboards on all roads of 80km/h and above. In

⁴ Rempel, G., Moshiri, M., Montufar, J., Dewar, R., & Forbes, G. (2013). Considerations for assessing the road safety impact of digital and projected advertising displays in Canada. In 2013 Conference and Exhibition of the Transportation Association of Canada-Transportation: Better-Faster-Safer. <https://trid.trb.org/view/1301752>.

practical terms, digital billboards could only be considered on roads with a posted legal speed of LESS than 80 km/h.

88 This is supported by the research derived by Elvik, which details that serious and fatal crash risk increases as speed increases. This is a common understanding of injury risk and speed, adopted by experts in New Zealand. This tenant forms the basis of the Safe System Assessment Framework adopted within New Zealand.

89 **RESPONSE TO REBUTTAL EVIDENCE OF MR R KERN**

90 While I have a functional understanding of lighting, and measurement of lighting effects, especially as they pertain to road safety and effects on users, I am not a technical expert in that field.

91 I have relied on material supplied by Mr Ian Campbell, a lighting expert for Stantec NZ.

92 Mr Kerr in Para 2.1 has stated that the restriction luminance changes [Rule SIGN-R3.1(d)(iii)] between successive images is unworkable and impractical for digital billboard operators.

93 I note that this requirement is currently in effect within AS/NZS 4282:2019, and is not a new requirement.

94 Mr Kerr presents a case to demonstrate that the 30% variance between successive images, citing a daytime condition. He states *"A motorist in daytime experiences far brighter variances between a digital billboard image limited to 5,000 cd/m² and an adjacent light coloured painted building surface lit by sunlight potentially being 15,000 cd/m² or more."*

95 Mr Cambell has responded to this position with the following statements (Para Reference to Mr Campbells technical memo):

(a) Para 19

In reviewing the submission of Mr Kern, I believe the author is presenting a position for rejection of the 30% luminance transition rule by presenting that obtrusive lighting effects for a driver exposed to lit billboards, during the day.

(b) Para 20

I make comment that while the numerical variances (in brightness) are more pronounced during the day, the overall effect will be negligible due to the high ambient lighting levels i.e. midday (zenith) direct sunlight with no clouds is 1,000,000,000+ cd/m² and with clouds it is up to 10,000 cd/m². It is my professional opinion that an over-lit billboard (during the day) will not present that much of an issue.

96 Mr Cambell contends that the utilisation of a daytime example does not reflect the true impacts of the 30% variance control during nighttime conditions.

97 Mr Cambell, in Para 21 to 27, outlines the human eye's biological differences (between daytime and nighttime vision) which has a bearing on all forms of lighting whether it is internal lighting, outdoor road/area lighting or illuminated signage. I accept this outline.

98 For the reasons stated in Mr Cambells report, he concludes:

(a) Para 28

This may not have a significant effect to motorists in central city areas (e.g. Auckland

CBD) or well-lit main arterial roads or motorways illuminated to Subcategory V2 or V1 levels where there are high levels of ambient lighting; but could have more serious implications in areas with lower ambient lighting levels such as collector roads with Subcategory V4 or V3 lighting or local (Category P) commercial or industrial zones.

- 99 In discussions with Mr Cambell, it has been identified that the 30% variance control detailed in AS/NZS 4282:2019 is collectively associated with a minimum dwell time of 10 seconds. This dwell time is associated to my stated minimum position of 10 seconds.
- 100 Mr Kern has presented in Para 4.13 to 4.15 of his rebuttal, that both SIGNS-S9.1, and LIGHT TABLE 3 refer to an “average” luminance value. He presents that a correct measure should be Maximum Luminance value.
- 101 Mr Campbell has considered this position, and makes the following comments:
- (a) *I have considered Mr Kerns rebuttal in Sections 4.13, 4.14 and 4.15 and concur with his recommendation to replace the term “maximum average luminance” with “maximum luminance” to ensure that the absolute maximum or peak luminance values are the limiting factors in LIGHT TABLE 3 and SIGN-S9.1. I also believe that the term “maximum average luminance”, referred to in AS/NZS 4282 and other district plan rules, is misleading as it could be interpreted as “average” luminance values rather than maximum peak values.*
- 102 I have considered this position and note that using a maximum value, as opposed to an average value result in the “worst case” values for any given displays. I consider that the assessment matters within the SIGNS and LIGHT chapters with respect to luminance, combined with the acceptance of the 10 second minimum dwell time, would generally result in a process that would facilitate the adoption of AS/NZS 4282:2023, mitigating the removal of the 30% variance between successive images as already stated in AS/NZS 4282:2019.
- 103 At a simplistic level, considering the effect of transition between successive displays, I note that as entity holding the Resource Consent, the requirement is on the consent holder to ensure that any content of a displayed message must not breach any requirement relating to content, including, but not limited to, replicating regulatory and traffic control devices, display of QR codes, and / or offensive content. This requirement of review could also facilitate the sequencing of any consecutive displays to maximise compliance with the District Plan rules. This requirement for content control already exists for all existing digital billboards.

Appendix A – Evidence of Mr Ian Campbell

Attention: Sean Bellamy

Project Name Hutt City Council Signs Chapter -
Lighting

Project/File: 310206917

From: Ian Campbell
Stantec Dunedin

Date: 5 October 2026

Reference: HCC - DP Sign Chapter - Assessment of Rebuttal Evidence - Lighting

INTRODUCTION, QUALIFICATIONS AND EXPERIENCE

1. My full name is Peter Ian Campbell, known as Ian.
2. I am a Senior Electrical Engineer specialising in illumination engineering.
3. I have over 43 years' experience in the electrical and lighting industry, including 20 years' experience in outdoor public and amenity lighting design including the mitigation of obtrusive lighting. My lighting experience also includes the provision of external peer reviews, provision of PS1 and PS2 producer statements and preparation of "statements of evidence" as an expert witness associated with various Resource Management hearings. Countries of experience include Australia, Fiji and new Zealand.
4. I am a Registered Engineer with the Engineering Associates Registration Board (REA Electrical) and a member of the Illuminating Engineering Society of Australia and New Zealand (MIES). My engineering qualifications are:
 - a. Electrical Technicians Certificate (ETC); and
 - b. New Zealand Certificate of Engineering (NZCE Electrical)

CODE OF CONDUCT

5. Although this is a council hearing, I have read the Code of Conduct for Expert Witnesses in the Environment Court Practice Note 2023. I have complied with the Code of Conduct when preparing my written report and I agree to comply with it when I give any oral evidence.
6. I confirm that I have considered all the material facts that I am aware of that might alter or detract from the opinions that I express, and that this report covers matters within my area of expertise, except where I state that I am relying on the reports and/ or views of another person.

SCOPE OF EVIDENCE

7. My evidence primarily covers further submissions made on the SIGNS chapter by Mr Russ Kern on behalf of **OUT OF HOME MEDIA ASSOCIATION OF AOTEAROA**, with matters pertaining to lighting.

RESPONSE TO EVIDENCE OF MR R KERN

8. My responses to the expert witness statement of Mr Kern are below, using the same section numbers as presented by Mr Kern. These are:

- a. Section 2.2
- b. Section 2.3
- c. Section 4.4
- d. Section 4.5
- e. Section 4.6
- f. Section 4.8
- g. Section 4.10
- h. Section 5.2

9. Sections 2.2, 4.6 and 4.10 - The author's repeated statements are correct in that the 30% luminance transition rule (controlling the average luminance outputs between successive images) was removed from AS/NZS 4282:2019 as part of the AS/NZS 4282:2023 revision.

10. Sections 2.2, 4.6 and 5.2 - Considering the current District Plan review, I am mindful that Hutt City Council may currently adopt AS/NZS 4282: 2019 within the District Plan. Unless otherwise specifically stated, or changed as part of this District Plan review process, this remains the effective document for the purpose of the District Plan.

11. Sections 2.2, 4.6 and 5.2 - It is unclear how many local authorities still adhere to this rule, but it may still be a legislative requirement for any local bodies still referring to AS/NZS 4282:2019.

12. Sections 2.2, 4.6 and 5.2 - I note that there is no reason why a local body cannot adopt more onerous mitigation measures, than those provided in AS/NZS 4282: 2023, by including the 30% luminance transition rule, or any other rule for that matter.

13. Section 4.10 - This section highlights the omission of the 30% luminance change rule (between successive images) in AS/NZS 4282: 2023; however, the author does not mention another omission (between the 2019 and 2023 versions of AS/NZS 4282) where the minimum 10 second dwell time rule (of graphical content and colours) has also been removed.

14. Section 4.10 - Further to the above I have summarised the main difference between the 2019 and 2023 versions of AS/NZS 4282 as they relate to digital billboards:

AS/NZS 4282:2019 Section 3.3.5.4 - 10 second dwell time and 30% luminance change rules removed from 2023 version - 2023 version is less onerous.

AS/NZS 4282:2019 Table 3.2 - Threshold Increment (TI) for Environmental Zone A1 requirement of N/A replaced with 20% in 2023 version - 2023 version is more onerous for TI but only for digital billboards in Zone A1.

AS/NZS 4282:2019 Table 3.5 - Max luminance of 0.1 cd/m² for Environmental Zone A1 replaced with 50 cd/m² in 2023 version - 2023 version is less onerous.

AS/NZS 4282:2023 Section 3.3.3.2 requires digital billboards within 100m of the boundary of a residential dwelling to have a maximum vertical illuminance (E_v) of no greater than 50% of the maximum allowable from Table 3.2. This is a new requirement that was not part of the 2019 version - 2023 version is more onerous but only for digital billboards located within 100m of residential properties.

15. Sections 2.2, 4.6 and 5.2 - I note that the AS/NZS 4282: 2019 requirement of 30% luminance transition to be practically implemented, each billboard manufacturer will require to incorporate an automated calibration system to measure the brightness, and then apply a correction matrix to keep any variations with 30%. It is my opinion that this is inherent within the requirements of AS/NZS 4282: 2019.
16. Sections 2.2, 4.6, 4.10 and 5.2 - Professionally, I support the adoption of the 30% luminance transition rule and 10 second minimum dwell time rules as the focus (of the District Plan Sign Rules) should be on road user safety, minimising effects on the road user.
17. Sections 2.2, 4.6, 4.10 and 5.2 - If driver safety can be improved by applying more onerous rules to digital signs and billboards then I consider that will results in a safer operational effect. I professionally have a primary concern that if the luminance transition change (30%) between successive images and also the 10 second minimum dwell time are not enforced through these rules, then a condition whereby large variations in luminance levels and shorter dwell times (below 10 seconds) between images, scenes or colours may present a disruptive “strobe” effect which could add further distraction to nighttime drivers.
18. I am of the opinion that no matter whether (or not) the 30% luminance transition rule is adopted, the DP Signs Rules should include the following minimum requirements for illuminated signage:
 - a. Obtrusive mitigation in accordance with AS/NZS 4282:2023 Section 3.3.3 Tables 3.2 and 3.4.
 - b. The dwell time shall be no less than 10 seconds in accordance with AS/NZS 4282:2019 Section 3.3.5.4.
 - c. Design, location and operation of digital advertising billboards shall be in accordance with the “NZTA - Digital advertising billboards and state highway road safety - Planning Policy Manual” dated September 2026. Although this policy manual applies to state

highways it should be referenced and, where applicable, applied as part of the HCC DP Sign Chapter.

19. Section 2.3 - In reviewing the submission of Mr Kern, I believe the author is presenting a position for rejection of the 30% luminance transition rule by presenting that obtrusive lighting effects for a driver exposed to lit billboards, during the day.
20. Section 2.3 - I make comment that while the numerical variances (in brightness) are more pronounced during the day, the overall effect will be negligible due to the high ambient lighting levels i.e. midday (zenith) direct sunlight with no clouds is 1,000,000,000+ cd/m² and with clouds it is up to 10,000 cd/2. It is my professional opinion that an over-lit billboard (during the day) will not present that much of an issue.
21. Section 2.3 - The author has drawn attention to daytime scenarios for digital billboards. However, in my professional opinion, this has failed to consider the human eye's biological differences (between daytime and nighttime vision) which has a bearing on all forms of lighting whether it is internal lighting, outdoor road/area lighting or illuminated signage.
22. Section 2.3 - The human eye retina contains up of 125 million rod shaped light receptors (**rods**) and about 6-7 million cone shaped receptors (**cones**). During the day, the cones are active (**photopic vision**) and provide our most acute vision, colour sensitivity and high adaptation rates, so the eye adapts very quickly in well-lit areas. At night, the rods are active (**scotopic vision**) and provide basic sensitivity to movement with very low lighting levels once fully dark adapted.
23. Section 2.3 - The rods provide very low adaptation rates (slower to adapt to dark environments), higher sensitivity and poor colour rendering (known as **black and white vision**).
24. Section 2.3 - In terms of light adaptation rates, when people transition from a dark area to a well-lit area the eyes adjust very quickly, but when transitioning from a well-lit area to a dark area they take significantly longer (5 minutes to 30 minutes or more) depending on the situation.
25. Section 2.3 - There is also an intermediate vision (between full daylight and total darkness), called **mesopic vision** (or middle vision), which covers the region of vision in low lighting levels and is a combination of photopic and scotopic vision where both rods and cones are active, and mesopic vision is normally associated with most nighttime outdoor road and area lighting applications.
26. Section 2.3 - As the eye operates differently between day and night you cannot make a fair or useful comparison of possible lighting effects between daytime and nighttime scenarios, without taking account of the biological changes in human vision.

27. Section 2.3 - My main area of concern is that motorists driving at night (adapted to mesopic vision), who are exposed to digital videos on billboards, may focus too much, or for too long (e.g. sitting at traffic lights) on the billboard which may result in distraction and slower eye adaptation as the driver transitions from the billboard area to the roadway environment.
28. Section 2.3 - This may not have a significant effect to motorists in central city areas (e.g. Auckland CBD) or well-lit main arterial roads or motorways illuminated to Subcategory V2 or V1 levels where there are high levels of ambient lighting; but could have more serious implications in areas with lower ambient lighting levels such as collector roads with Subcategory V4 or V3 lighting or local (Category P) commercial or industrial zones.
29. I have considered Mr Kerns rebuttal in Sections 4.13, 4.14 and 4.15 and concur with his recommendation to replace the term "maximum average luminance" with "maximum luminance" to ensure that the absolute maximum or peak luminance values are the limiting factors in LIGHT TABLE 3 and SIGN-S9.1. I also believe that the term "maximum average luminance", referred to in AS/NZS 4282 and other district plan rules, is misleading as it could be interpreted as "average" luminance values rather than maximum peak values.