

Memorandum

To:	Hamish Firth, MHG	From:	Brett Harries
cc:	Simon Berry, Berry Simons	File:	Med001
cc:		Date:	13/02/23
Ref:	[#CCL22918] RM220088- 47 The Esplanade - Mediaworks Proposed Digital Billboard - Response to Request for Further Information		

1. Introduction

This memorandum responds to a Hutt City Council (**Council**) request for further information (**RFI**)¹ as relates to the intended dwell time that is to apply to a proposed digital billboard at 47 The Esplanade in Petone.

This RFI response should be read alongside the Stantec January 2022 Traffic Engineering Report (January 2022)² that accompanied the application (**TER**), and particularly its Section 2.2 which specifically addresses dwell time.

This RFI response should also be read alongside the Stantec initial response to requests for further information that was provided by way of a letter report dated 22 August 2022³ (**Initial RFI Response**), and which is predominantly focussed on dwell time issues. A copy of the Initial RFI Response is attached to this memorandum.

The RFI from Council seeks the following:

"...further analysis of the basis for the proposed dwell time of 8-seconds, and in particular asks for an analysis of the number of image changes that will be seen by drivers from the point that the billboard first becomes visible."

The reason for the RFI is given as follows:

"it's a general principle of longer [dwell time] means a reduce likelihood of a driver seeing a change in imagery and causing a distraction which could lead to an accident."

Subsequent to the 31 January 2023 RFI is a suggestion that a dwell time of 20-seconds should apply. On querying the basis of determination of Council's suggested 20-second dwell time, the response received was:

¹ As received by email from Elliott Thornton dated 31 January 2023

² Stantec "Proposed Digital Billboard - 47 The Esplanade, Lower Hutt" dated January 2022.

³ Stantec letter report "RM220088 - 47 The Esplanade, Mediaworks Outdoor Ltd - Proposed Digital Billboard Response to Further Information Request" dated 22 August 2022

“...there is no concrete evidence as to why the 20 second dwell time was proposed but it has been decided based on a number of different factors.”⁴

In responding to the RFI, assessments are provided below that describe:

- a) the sight distances to the billboard;
- b) the measured average travel speed on The Esplanade; and
- c) the calculated number of image changes that can be seen.

An assessment will then be provided of what the outcomes of those analyses actually mean in terms of road safety, and a further commentary will be provided on why the proposed 8-second dwell time is appropriate and acceptable for operation of the proposed billboard in this traffic environment.

2. Sight Distances

As described in the TER⁵, for road users on the eastbound approach, the maximum extent of potential discernibility of the west-facing digital screen will be about 300m, this being from the point that an eastbound road user has exited from the Hutt Road roundabout.

For road users on the westbound approach, they will become aware of the presence of the east-facing digital screen from a distance of around 230m, which is a point about 80m east of the Te Puni Street intersection.

Significantly however, and as noted in both the TER and the Initial RFI Response, legibility of image content will not be practically available until within about 100m of the billboard.

3. Travel Speeds

Travel speeds along The Esplanade have been sourced from the Wellington Transport Analytics Unit website which includes Hutt City traffic count surveys.

The most recent and relevant data comes from a survey undertaken on The Esplanade between the Hutt Road roundabout and Armidale Street in August 2020. Included in that survey were travel speeds.

The 85th percentile travel speeds recorded in each direction were as follows:

Travel Speeds	Eastbound	Westbound
85 th percentile speed (km/h)	53.6 km/h	58.3 km/h

Table 1: The Esplanade Travel Speeds

4. Visibility Durations

Based on the measured 85th percentile travel speeds and the available visibility distances from which the billboards will be discernible as described above, the durations of visibility that road users will have in each direction are as follows:

⁴ As received by email from Oliver Clausen dated 8 February 2023

⁵ TER, sections 5.1.1 and 5.1.2

Durations of visibility	Eastbound	Westbound
Maximum discernibility	20 seconds	14 seconds
Legibility distance (100m)	7 seconds	6 seconds

Table 2: Visibility durations by direction

5. Analysis

As noted above, the concern expressed in the RFI is that a change in imagery could cause a distraction which could lead to an accident. With respect however, that concern, which appears to be based on perception alone rather than any known empirical evidence, has no credible basis.

When viewed from beyond the distances that image content would be reasonably legible to approaching road users, (i.e. beyond about 100m), road users will have little interest in the billboard, and will certainly not be fixated on it, because the content of images displayed will not be readily legible. Some road users might become aware of the transition when beyond the legibility distance, but few, if any, will register it as anything that is particularly extraordinary or worthy of more than the briefest of glances. This is primarily because the 0.5-second dissolve transitions that are proposed (as distinct from instantaneous transitions), have been deliberately adopted to ensure gentle and subtle transitions that have least potential to catch the involuntary attention of drivers.

Notwithstanding these points, if a road user was to become aware of an image change while beyond the (approximately 100m) legibility distance, it is highly improbable that such an awareness would translate into a distraction. In order for a distraction to occur, the image transition would have to produce a material impact to either a driver's normal driving behaviour, and/or a driver's normal driving performance. Further, the magnitude of distraction would have to be of sufficient moment that it then leads to a crash. With respect, this is so highly unlikely as to be implausible. It is, therefore, considered fanciful to suggest that image transitions viewed from such distances could cause distractions of the significance required to then cause crashes to occur. Accordingly, the need to manage or restrict the extent that road users might "see" an image transition on a billboard that is too far away to enable legibility of its content is simply unnecessary.

What is of more relevance is the potential effects on a road user when sufficiently close to the billboard to have a potential interest in the images being displayed. When viewed from within the lengths of The Esplanade where image content would be reasonably legible (i.e. within about 100m), the travel times over that distance will be 7 seconds (eastbound) and 6 seconds (westbound). If the billboard operates with an image dwell time of 8-seconds, then it will ensure that road users see no more than one image change on that part of their approach.

In considering the acceptability of an 8-second dwell time, some comfort can be taken from the fact that in the past 11 years of digital billboard operations, (of which there are now in excess of 700 digital screens throughout the country), there is no known evidence either from the Waka Kotahi CAS crash database, or from before and after studies, (usually undertaken as monitoring conditions of consent), that digital billboards are having any identifiable adverse impact on

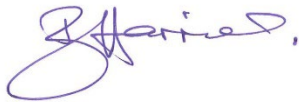
road safety. This is despite that the vast majority of the 700+ digital billboards in New Zealand operate with an image dwell time of 8 seconds as is proposed in this case.

6. Conclusions

Based on these further assessments, it is concluded that:

- a) The proposed adoption of an 8-second dwell time for the proposed billboard is appropriate and acceptable, and supported by the safe operation of the many hundreds of other digital billboards in New Zealand that similarly operate with an 8-second dwell time. There is certainly no known empirical evidence to suggest that an 8-second dwell time is in any way unsafe, including within traffic environments that are similar to that which exist on The Esplanade.
- b) There is no credible technical basis to support a 20-second dwell time as suggested in the latest Council RFI.

I would be happy to further elaborate on any of the above as required.



Brett Harries

Harries Transportation Engineers

Attachment: Initial RFI Response

22 August 2022

Project/File: 310205061.100.105

Daniel Coppell
Mt Hobson Group

By email: daniel@mhg.co.nz

Dear Daniel,

Reference: RM220088 - 47 The Esplanade, Mediaworks Outdoor Ltd - Proposed Digital Billboard Response to Further Information Request

This report provides a response to the request for further information (**RFI**) regarding the traffic effects of a proposal by Mediaworks Outdoor Ltd to establish a digital billboard at 47 The Esplanade. The RFI was received via Hutt City Council's consultant planner by email dated 20 June 2022.

In providing this further information, we note that it should be read alongside the Stantec Traffic Engineering Report "*Proposed Digital Billboard – 47 The Esplanade, Lower Hutt*" dated January 2022 (**TER**).

The RFI has a total of 11 requests of which the first four relate to traffic matters. Each of the four traffic-related requests are addressed separately as follows:

1. TCDM3 Addendum

"Provide an assessment against the updated ADDENDUM TO TCDM-3 which was released 24 March 2022 by Waka Kotahi (NZ Transport Agency) and attached to this email. The traffic report only provides an assessment against the "Traffic control devices manual, 2011, Part 3 Advertising signs" (TCDM3)".

Reference to the TCDM3 Addendum was not included in the TER because at the time the TER was prepared (January 2022), the TCDM3 Addendum had not been released by Waka Kotahi. The TCDM3 Addendum was released on 24 March 2022, but a short time later on 23 June 2022 it was withdrawn by Waka Kotahi. It is understood that its withdrawal was a consequence of shortcomings that were identified in the process and content of its preparation, and that it is currently subject to further consideration.

Accordingly, at this time it is considered inappropriate to assess the proposal against the TCDM3 Addendum.

2. Probability of seeing an image change

"Provide the probability that vehicles travelling in either direction of The Esplanade will see an image change accounting for the average (not signed) speed and visible sightlines. As a minimum, provide probabilities for 8 seconds, 12 seconds, 15 seconds, 30 seconds, 1 minute, 5 minutes, 10

minutes, 20, minutes and 30 minutes in accordance with the dwell time calculator in the ADDENDUM TO TCDM-3 document.”

As noted in item 1 above, as the TCDM3 Addendum has been withdrawn, assessments of billboards based on the probability of seeing an image change currently have no basis in terms of any relevant guideline or standard. Indeed, this section of the TCDM3 was one where inconsistencies and errors were identified.

Notwithstanding the withdrawal of the TCDM3 Addendum, and hence the removal of the relevance of and basis for assessments of this nature, for completeness they have been undertaken as requested.

As noted in the TER, The Esplanade operates with a posted speed limit of 50km/h. MegaMaps shows The Esplanade as operating with a mean speed of 49km/h westbound, and 46km/h eastbound, both of which are consistent with the 50km/h speed limit.

As noted in the TER, the maximum distances from which it is possible to discern the presence of the billboard are 230m in the westbound direction, and 300m in the eastbound direction. As also noted in the TER however, the size and orientation of the billboard is such that in both directions, practical legibility of any screen content will not be available until within about 100m to 80m from the billboard (for both directions of travel). This means that prior to reaching a distance of up to 100m from the billboard, drivers will have little or no interest in viewing the billboard, as screen content will not be readily legible.

It is also noted that the billboard is proposed to operate with 0.5 second dissolve transitions. This type of transition has been deliberately adopted as a means of ensuring that changes from one image to the next are sufficiently gentle and subtle to not catch the involuntary attention of a driver.

The RFI requests probabilities of a driver seeing an image change for a wide range of dwell times. These have been calculated and are tabulated below. Three sets of results are provided, being for the 100m practical legibility distances that apply in both directions; the maximum discernibility distance of 230m in the westbound direction; and the maximum discernibility distance of 300m in the eastbound direction.

Dwell time to test (seconds)	Calculated probabilities of an image change		
	Visibility = 100m	Visibility = 230m	Visibility = 300m
8	0.900	2.070	2.700
12	0.600	1.380	1.800
15	0.480	1.104	1.440
30	0.240	0.552	0.720
60	0.120	0.276	0.360
300	0.024	0.055	0.072
600	0.012	0.028	0.036
1,200	0.006	0.014	0.018
1,800	0.004	0.009	0.012

What the above table shows is that within the practical maximum legibility of the billboards (100m), no driver is likely to see more than one image change if the dwell time of at least 8 seconds applies. For the maximum distances where the presence of the billboard might be discernible but not legible, dwell times of greater than 15 seconds will mean that no driver is likely to see more than one image change.

However, in and of themselves, the above probabilities are somewhat meaningless. When considering the likely effects of the billboard, the issue is whether an image change (regardless of what proportion of drivers will see that image change) is such that it causes some sort of effect that influences either driver behaviour or driver performance to the extent that it could have an identifiable adverse road safety effect. As described in the TER and earlier in this response, the proposed use of 0.5-second dissolve transitions is specifically proposed to ensure that image changes do not create an adverse road safety effect for any driver that happens to see one as they pass.

In this regard, some comfort can be taken from the fact that since the first ever billboard was established in New Zealand over ten years ago (noting that there are now in excess of 650 digital advertising screens throughout the country), almost all operate with 0.5-second dissolve transitions; and there is absolutely no evidence either from references in the crash records, or changes in crash numbers, or changes in crash patterns, or from international research, that billboard image changes of this nature are generating any identifiable adverse road safety effects.

The dwell time proposed for the billboard as described in the TER is 8-seconds for both screens and is proposed on the basis that:

- it is the industry standard dwell time that applies to the vast majority of digital billboards throughout New Zealand (both large-format billboards, and small-format billboards such as in bus shelters);
- it was identified as an appropriate dwell time in the 2012 trial undertaken in conjunction with Auckland Council and Auckland Transport;
- it is consistent with international best practice regarding the setting of dwell times; and
- it has a proven road safety record.

Accordingly, and having considered in the TER the particular traffic environment within which the subject billboard sits, the proposed 8-second dwell time is in this case considered appropriate and acceptable. It is fully supported by research and practical trials; it is consistent with industry best practice in New Zealand; and it will ensure that appropriate levels of road safety are maintained.

3. Probability of seeing more than one image change

“Provide the probability that a car will see more than 1 image change based on the probabilities requested in item 2).”

As apparent from the table provided in response to Item 2, with the proposed image dwell time of 8 seconds, no drivers are likely to see more than one image change for the maximum practical legibility distance of 100m.

If however, the maximum possible discernibility distances are considered, then drivers will see either 2 or 3 image changes with the proposed 8-second dwell time. However, given that drivers will have little inherent interest in a billboard screen that cannot be read, and that the proposed 0.5-second dissolve transitions are deliberately intended to minimise the extent that image changes will catch the involuntary attention of drivers, (especially from the large distances involved), then

whether a passing driver sees one, two or three image changes is actually irrelevant to the consideration of the actual (as distinct from perceived) road safety and traffic operations effects of the proposed billboard.

4. Need for mitigation

Provide an assessment if any positive effects (such as offering up free advertising for road safety or community messages) to consider against any adverse effects. It should be noted in the recent Environment Court decision [Prime Property Group v Wellington City Council] the Court noted that the digital billboards added further risk “without providing any public benefit”. The High Court upheld that the consideration of public benefit (or lack thereof) as a relevant matter for consideration under section 104. I have attached a copy of both decisions.

As concluded in the TER, the proposal can be accepted as being consistent with the intentions of both the District Plan and TCDM3; and will be able to function with less than minor adverse effects to either road safety or traffic operations. There was no traffic engineering reason to suggest that the proposal could lead to adverse effects.

In this regard, the reference in the RFI to the recent Environment Court decision [Prime Property Group v Wellington City Council] has little practical relevance to the assessment of this proposal, mainly because:

1. The billboard does not face a State Highway.
2. The billboard is within a 50km/h speed environment, not a 100km/h one.
3. The section of The Esplanade within which the billboard is proposed to be established has an insignificant crash rate, which sharply contrasts with the much higher crash rate (including death and serious injury crashes) on the relevant section of Hutt Road.
4. The Esplanade carries about 17,000 vehicles per day, compared to the Hutt Road which carries over four times that volume at around 70,000 vehicles per day.
5. New Zealand has a wealth of experience to draw from in terms of digital billboard operations on low-speed roads (as noted there are now in excess of 650 throughout New Zealand that have been developed over the past decade); whereas the Hutt Road application (at the time it was made) was the first of its kind on a 100km/h road.

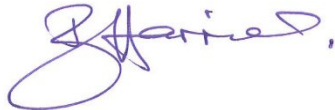
As described in the TER, the detailed consideration of the proposed billboard includes the implications of its locational and operational characteristics, and has proposed specific conditions of consent that will ensure that there will unlikely be any adverse road safety effects that require further mitigation.

Reference: RM22008847 The Esplanade – Mediaworks Proposed Digital Billboard - Response to Further Information Request

I trust the above responses adequately address the traffic-related information requests that were made. I would be happy to further elaborate on any of the above as required.

Yours sincerely,

STANTEC NEW ZEALAND



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