

IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER of a resource consent application by **SEAVIEW HP LIMITED** to the **HUTT CITY COUNCIL** to install a double-sided free-standing digital billboard at 47 The Esplanade in Petone.

SUPPLEMENTARY STATEMENT OF EVIDENCE OF BRETT HARRIES

1. INTRODUCTION

- 1.1 My full name is Brett Harries. I have the qualifications and experience as outlined in my evidence in chief dated 31 May 2024 (**EIC**).
- 1.2 I confirm that this supplementary evidence has been prepared in accordance with the Environment Court's 2023 Practice Note, and that in giving this evidence I continue to adhere to the requirements of the Practice Note.

Purpose and Scope of Supplementary Evidence

- 1.3 The purpose of this supplementary evidence is to respond to several traffic-related matters raised during the course of the hearing, particularly including matters raised in the submissions provided by Pete Matchum for Hutt City Grey Power Association Inc (**Grey Power**), and David Tripp on behalf of Hutt Cycle Network (**HCN**).
- 1.4 The topics I wish to address include the following:
 - (a) The dwell time that is proposed for the billboards (Section 3);
 - (b) The relevance and applicability of international research (Section 4);
 - (c) The robustness and relevance of Waka Kotahi New Zealand Transport Agency's Crash Analysis System (**CAS**) (Section 5);
 - (d) The reference to the AECOM crash data for The Esplanade and Port Road by HCN (Section 6);
 - (e) Cyclist safety implications due to the billboards (Section 7).

2. DWELL TIME

2.1 I have described in some detail in section 6 of my EIC the basis for proposing an 8-second dwell time. As noted therein:

- (a) the dwell time was initially determined from a combination of reference to overseas research and practices, and practical trials undertaken in Auckland in 2012;
- (b) it has become the default industry standard for 50km/h roads in urban areas, with an estimated 90% or more of all existing digital advertising signs in New Zealand operating with this dwell time; and
- (c) it has contributed to the demonstrably safe operation of digital billboards as evidenced by the lack of any identifiable road safety outcomes associated with the operation of digital billboards.

2.2 By way of examples of existing digital billboards that currently operate successfully and safely with 8-second dwell times on comparably busy arterial roads in the Wellington region, the following sample list of sites is provided:

- (a) Vivian Street southeast of Tory Street (Lumo);
- (b) Aotea Quay midway between Sky Stadium and the Picton ferry terminal (JCDecaux);
- (c) Waterloo Quay pedestrian overbridge – both sides (Go Media);
- (d) Waterloo Quay south of pedestrian overbridge (JCDecaux);
- (e) Customhouse Quay / Brandon Street (Lumo);
- (f) Taranaki Street opposite Ghuznee Street (JCDecaux);
- (g) Featherston Street at Bunny Street (Lumo);
- (h) 4 Hutt Road - east of Hutt Roundabout (Jolly Billboards); and
- (i) High Street at Queens Drive Lower Hutt (Go Media).

3. RELEVANCE AND APPLICABILITY OF INTERNATIONAL RESEARCH

3.1 The research that I referred to in my EIC describes the road safety effects of digital billboards, and the reasons that I highlighted for my reliance on that research that, are described in detail in Section 3 of my EIC. As described therein, and as I made a point of explaining in response to questions from the Panel, it is particularly important to understand that not all research that has 'digital billboard' as its subject matter is relevant to this

proposal. I have described the reasons for that in my EIC and in my responses, the key ones being:

- (a) A large proportion of the published studies include motion video displays, which are not typically applied in New Zealand, and which can have an appreciably greater potential to hold the attention of an observer when compared to digital content that is static while being displayed (as it is in this case).
- (b) Aside from the potential use of motion video, some of the jurisdictions within which studies were based allow digital billboard operational characteristics that differ markedly from those that are applied in New Zealand. Those jurisdictions may not, by way of examples, have the:
 - (i) same controls on characteristics such as maximum luminance levels; and/or
 - (ii) need for adaptive luminance that is responsive to ambient light levels, and/or
 - (iii) method of transition between images, and/or the need for minimum dwell times.
- (c) Many studies (particularly most of the older studies) were based on driver simulator experiments which necessarily required potential road safety effects to be inferred from artificially derived driver performance measures. In almost every case in these studies, the inferred road safety effects from the laboratory experiments were not, or were unable to be, validated from real-world data.

3.2 It is for these reasons that (as I explained in response to questions from the Panel) I have deliberately looked more closely at recent, empirically derived, predominantly Australasian-based research on the basis that billboard operational characteristics, traffic environments and traffic conditions will more likely be comparable and relevant. To do otherwise, that is, to adopt every bit of research ever published in an unfiltered manner as if all is relevant would in my professional opinion be inappropriate and unhelpful when examining and assessing the specific proposal that is before the Panel.

3.3 Even then, whatever research is available must also be considered against the weight of observations and measurements of actual road safety outcomes from the now 12+ years' experience of many hundreds of operational digital billboards throughout all of New Zealand. In other words, it is one thing for a driver simulator laboratory experiment to infer the road

safety effects of digital billboards by extrapolating driver performance measures and/or driver behaviours, and quite another thing to observe and measure what is actually happening on the road in the vicinity of digital billboard sites. In this regard, with the passing of each day of operational digital advertising signs throughout New Zealand (and millions globally), the predictive research becomes less relevant, being eclipsed by actual observations and measurements.

Wachtel report

3.4 One aspect of the available research that was discussed during the hearing is that by Jerry Wachtel. Mr Wachtel has had a somewhat complicated relationship with digital billboards. When he was employed by the US Federal Highways Administration (**FHWA**), he was part of the early stages of a multi-stage study to infer the potential road safety effects of digital billboards by examining glance durations. The FHWA study culminated in the publishing of a 2012 report "*Driver Visual Behavior In The Presence Of Commercial Electronic Variable Message Signs (CEVMS)*" (**FHWA Study**).

3.5 The FHWA Study describes its purpose as follows:

"This study was conducted to investigate the effect of CEVMS on driver visual behavior in a roadway driving environment. An instrumented vehicle with an eye tracking system was used. Roads containing CEVMS, standard billboards, and control areas with no off-premise advertising were selected. The CEVMS and standard billboards were measured with respect to luminance, location, size, and other relevant variables to characterize these visual stimuli. Unlike previous studies on digital billboards, the present study examined CEVMS as deployed in two United States cities and did not contain dynamic video or other dynamic elements. The CEVMS changed content approximately every 8 to 10 seconds, consistent within the limits provided by FHWA guidance."

3.6 The concluding paragraph from the FHWA Study is as follows:

"The present data suggest that the drivers in this study directed the majority of their visual attention to areas of the roadway that were relevant to the task at hand (i.e., the driving task). Furthermore, it is possible, and likely, that in the time that the drivers looked away from the forward roadway, they may have elected to glance at other objects in the surrounding environment (in the absence of billboards) that were not relevant to the driving task. When billboards were present, the drivers in this study sometimes looked at them, but not such that overall attention to the forward roadway decreased.

(Underlining is mine).

3.7 However, despite being involved in the early stages of the study, Mr Watchel took issue with the latter stages as just described because of the study

methodology and the way data was interpreted. He subsequently went on (independently of the FHWA) to prepare two compendia of research, generally with the objective of reinforcing his view that glance durations to digital billboards can be sufficiently long to be adverse to road safety. The latest compendium¹ examined 21 papers that were published between 2008 and 2016 and provided observations from those papers but no further original research. The summary it provides is as follows:

"Broadly summarized, the more recent studies have tended to find that outdoor advertising signs, particularly CEVMS, attract drivers' attention, and that more dramatic and salient signs attract longer and more frequent glances. This attention is often captured through a "bottom up" physiological process, in which the driver attends to the sign unintentionally and unconsciously, with the eyes captured involuntarily by the sign's changing imagery, brightness, conspicuity, and/or movement."

3.8 The Wachtel compendium has, in my opinion, only limited relevance to consideration of the billboards proposed in this application, because the papers it refers to either:

- (a) infer road safety effects, primarily on the basis of glance durations, without real world validation of those effects; and/or
- (b) are not applicable to digital billboards located in the sort of traffic environment that is proposed in this case (i.e. low-speed non-motorway / non-freeway); and/or
- (c) are not applicable to the manner in which the proposed billboards will operate (i.e. with images static while being displayed; 0.5 second cross-dissolve transitions; and controlled and managed luminance).

3.9 I note that in the submission from Mr Matcham on behalf of Grey Power, that on the fourth page of his written submission, he has referred to three research papers on driver inattention / driver distraction (refer to his footnotes 3, 4 and 5). I am familiar with all three papers, which discuss the general road safety effects of "inattention" and/or "distraction". However, none of these papers are particularly relevant to billboards, and certainly none make any reference to signs or billboards.

3.10 In this regard, I note that "distraction" can mean anything, but in a road safety sense encompasses distractions by use of cellphones, in-car technologies, passengers, people outside the vehicle, and so on (such as I have described in paragraphs 4.5 and 4.6 of my EIC). Any object within a

¹ Wachtel, J. (2016) "Compendium of Recent Research Studies on Distraction from Commercial Electronic Variable Message Signs (CEVMS)".

driver's vision can become a potential distractor, but will only become a hazardous distraction if it encourages or causes a driver's behaviour or performance to change sufficiently so that driving becomes unsafe.

3.11 As I have described in Section 3 of my EIC, while some drivers may choose to glance at a billboard, the research² demonstrates that those glance durations are not of durations that could compromise road safety. Indeed, some of the research³ instead suggests (albeit does not prove) that the presence of digital billboards within a driver's forward field of vision may assist to increase a driver's situational awareness of the driving environment, with consequential road safety improvements. In other words, if a driver is glancing at a billboard that is within that driver's forward field of view while driving, then that driver is unlikely to be undertaking more 'distractive' activities such as using a cellphone or focusing on passengers or in-car technologies within the vehicle.

3.12 I note that Page 3 of the Grey Power submission has quoted from the on-line promotional material of a billboard operator called Primary Media (refer Grey Power footnote 2), which refers to claims (amongst others) that:

"...it's pretty difficult to ignore bright lights that are constantly switching between ads."

3.13 To be clear, Primary Media is not a New Zealand billboard operator, it is a comparatively small operator that is based in Dallas, Texas. I have undertaken several trips through Texas over the years and can attest to the fact that digital billboards there typically utilise very bright screens, instantaneous transitions, and often motion video.

3.14 I further note in this regard that the Primary Media website makes the claim that:

"Digital billboards are made with built in light sensors, causing the lights to dim during the day, and brighten at night ensuring your advertisement will be seen 24/7 by all who come across it."

3.15 The opposite occurs in New Zealand (and as proposed in this case), where the screen brightness is dimmed at night rather than brightened. I do not consider that the Primary Media promotional material can reasonably be translated to the proposal.

² Particularly Samsa (2015).

³ Including Young *et al* (2015), Goodsell *et al* (2018) and Cunningham *et al* (2016).

4. **ASSESSING THE ROAD SAFETY EFFECTS OF DIGITAL BILLBOARDS**

- 4.1 David Tripp of HCN and Pete Matchem of Grey Power, both made observations about the reliability of the Waka Kotahi CAS database, inferring that it cannot be relied upon, and instead Ministry of Health (**MoH**) is a more accurate form of data in understanding possible adverse safety outcomes attributable to digital billboards.
- 4.2 As I have previously described, with the growth in experience of billboard operations in the New Zealand context, the relevance of predictive research diminishes in favour of what can be observed, measured and assessed in practice. As I have also described in section 4 of my EIC, the Waka Kotahi CAS database provides a powerful tool for this purpose. I note in this regard that the New Zealand CAS database is generally envied by overseas jurisdictions from the perspectives that it:
- (a) provides a fully coordinated national database of recorded crashes;
 - (b) captures a high proportion of all crashes that are thought to occur; and
 - (c) captures a high level of detail and enables close interrogation and cross-referencing of crash factors and likely crash causes.
- 4.3 While the CAS database captures a high proportion of the crashes that occur, it can only capture those that are attended by a Police Officer, or are reported to the Police (noting that there is a legal requirement to report crashes to the Police, and that insurance claims typically require that a Police report has been made). Crashes that may not find their way into the CAS database are often:
- (a) single-vehicle (usually non-injury incidents); and/or
 - (b) single-vehicle incidents where the driver may have been driving illegally (such as if driving a stolen vehicle, or driving under the influence of alcohol or drugs, or driving in an unlawful manner).
- 4.4 The under-reporting of crashes has always been recognised and allowed for when undertaking CAS analyses; however, the extent of this under-reporting is far less than that which has been implied by the HCN submission.
- 4.5 In my EIC, and for any assessment of the CAS database I undertake when advising on a digital billboard application, I have compensated for any potential under-reporting by:

- (a) looking for specific crash factors in a widely cast net that includes all crashes for the whole of New Zealand over a 12-year search period; and
 - (b) looking for trend changes associated with potential crash number changes and/or crash pattern changes at specific digital billboard locations. Trend changes will obviously be largely independent of any potential under-reporting.
- 4.6 In relation to potential crash under-reporting, some submitters have focussed on MoH data regarding under-reporting of crashes. In his submission (slide 18 of his slide deck), David Tripp has shown a diagram from a Via Strada report⁴ that shows the following differences between injuries reported in CAS database and injuries according to MoH data:
- (a) People walking – 1 CAS entry : 8.3 MoH entries.
 - (b) People on bikes - 1 CAS entry : 7.3 MoH entries.
 - (c) People on motorcycles – 1 CAS entry : 3.0 MoH entries.
 - (d) People on transport devices (scooters etc) – 1 CAS entry : 13 MoH entries.
 - (e) People in vehicles – 1 CAS entry : 2 MoH entries.
- 4.7 The differences as relates to people on motorcycles and people in vehicles is perhaps not unexpected given the reasons for under-reporting I have referred to above but also for reasons that may include:
- (a) that a person at a crash scene may not have been considered as injured but who ultimately does seek medical attention; or
 - (b) a single-vehicle off-road incident may not be considered as a 'crash'
- 4.8 With the vulnerable road-users (pedestrians, cyclists and scooterists) the differences are greater, but this is simply a function of the explanation provided within the Via Strada report that:
- "The Crash Analysis System does not generally report on incidents not involving a motor vehicle (e.g. trips, slips and falls) ..."*
- 4.9 For these reasons, I certainly do not consider that there is some under-lying deficiency with the CAS database that would undermine the veracity of the road safety analyses that I have described in my EIC. Indeed, it is instead widely considered a particularly powerful and useful tool that is routinely applied by Waka Kotahi, all local authorities, and all transportation

⁴ Via Strada 2021 "Safety of people travelling outside vehicles".

consultants in New Zealand on essentially every sort of development project and roading project in New Zealand.

5. CYCLE SAFETY ON THE ESPLANADE

5.1 HCN's submission has made much of the existing road safety characteristics of The Esplanade. While I have addressed cyclist safety in sections 7 and 10 of my EIC, I make the following further points in response to the HCN submissions:

- (a) Traffic lanes in both directions along The Esplanade are currently adequate to accommodate both vehicles and cyclists. Any changes to the layout of The Esplanade to provide further space for cyclists is a matter for Hutt City Council to address should it consider it appropriate to do so.
- (b) The current cyclist road safety performance of The Esplanade in the vicinity of the site is good one. As noted in paragraph 10.3 of my EIC, no cycle crashes have been recorded within 300m of the proposed billboards over the past decade.
- (c) While HCN strongly criticised the existing form and function of the off-road shared path on the seaward side of The Esplanade, it nevertheless does provide an entirely safe alternative to use of The Esplanade for any cyclists who feel threatened by travelling with vehicular traffic on the road carriageway.
- (d) With the implementation of the Cross Valley Link, there will be a significant reduction in commuter travel demands on The Esplanade, with consequent opportunities at that time for further enhancements to cyclist use of The Esplanade.
- (e) Experience elsewhere in New Zealand demonstrates that the proposed billboards are unlikely to compromise cyclist safety in any way. The vast majority of digital billboards in New Zealand have been established on busy roads, and the majority of those roads accommodate cyclists. Following 12 years of digital billboard operations in New Zealand, the road safety data shows no harm having been caused to any cyclist as a result of the presence of any digital billboard. Further, there is no other evidence that I am aware of, either nationally or internationally, to suggest that digital billboards cause distractions to either motorists or cyclists to the extent that it compromises cyclist safety.

6. **CONCLUSIONS**

- 6.1 With all respect to the submitters who are undoubtedly genuine in their concerns regarding road safety, those concerns are, in my opinion, overstated, particularly in relation to the potential for the proposed billboards to hazardously distract road users.
- 6.2 Rather, the evidence from observation and assessment of the operations of the approximately 1,000 digital advertising signs throughout New Zealand quite clearly demonstrates that they can, and do, operate as safe and compatible elements of their traffic environments. This outcome is supported by recent empirically-based Australian research as I have referred to.
- 6.3 There is certainly no evidence whatsoever of an insidious underlying road safety issue associated with the operation of digital billboards as has been suggested by some submitters. Clearly, the perceptions held in this regard are unsupported by any form of reality.
- 6.4 Accordingly, I am able to confirm the assessments provided and conclusions reached in my EIC. In my opinion, there is nothing that is so particularly exceptional about the location of the proposed billboards, or their form and function, that would preclude their safe and compatible integration into their local traffic environment.

Brett Harries

10 July 2023