

**Roadside Advertising Display Screens,
M4 North-westbound
Adjacent to Baglan Way,
Port Talbot,
West Glamorgan**

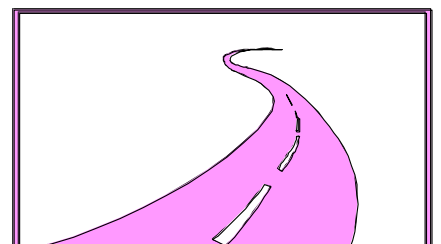
**Road Safety Risk
Assessment Report**

25th February 2021

Document Ref: CATraff/TALSCREEN/250221 **Issue:** FINAL
Prepared by: CA Traffic Solutions
On behalf of: Elonex Outdoor Media

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1 INTRODUCTION

- 1.1 This report has been commissioned to provide a road safety and highways assessment of the proposed LED advertising screens located on private land on Baglan Way, Port Talbot, adjacent to the M4 north-westbound carriageway.
- 1.2 The assessment has been carried out to supplement a Planning Application by Real Estate Director on behalf of Elonex Outdoor Media (Elonex), the screens' suppliers and installers.
- 1.3 This report has been compiled by Clive Ashby BA, CMS, I.Eng, FIHE, FCIHT, FSoRSA, RegRSA(IHE).
- 1.4 The report is based on a desktop study using Google Maps (street view August 2018).
- 1.5 Photographs of the site, the signing locations and the surrounding road network are shown in the Appendices.

2 SIGN DETAILS AND LOCATION

Sign Details

- 2.1 The proposed double-sided LED screens' structure has screens measuring 5 metres wide by 7.5 metres high. The construction, posts and bases will be designed and assessed by an approved engineering company. Where necessary passive posts will be used to mount the screens at an appropriate mounting height to ensure unrestricted visibility from the M4 motorway for drivers travelling in both directions. A suitable switchgear cabinet will be required to provide power and control systems for the screens. In the unlikely event that the sign is struck by a vehicle a break-away plug and cable system is provided to prevent electrocution to vehicle occupants and rescue teams.
- 2.2 Each sign face is comprised of a 30-sheet sized LED tiled screen. The proposed luminance above ambient luminance for daylight and darkness conditions for this sign in-situ will be 300 cd/m². (NOTE: where planning conditions are required, a maximum ambient value of between 300 cd/m² and 600 cd/m² is usually set as a Condition to granting approval.) The screens have a number of sensors mounted on top of the sign faces so that should the luminance rise or the control box fail the screens will reduce their brightness to 1% so at day time the screen projection cannot be seen at all, and at night time would be maximum 60 cd/m².
- 2.3 The screens will show only static adverts, with a proposed change time of 10 seconds, although this could be varied under Conditions of any planning approval.

Screens Location

- 2.4 The LED advertising screens will be set approximately 14 metres back from the rear of the M4 hard shoulder.
- 2.5 Separating the M4 carriageway from the proposed screens is a narrow grass verge; a length of vehicle restraint barrier; and a wooded area. Should an errant vehicle leave the M4 carriageway it is extremely unlikely that it would collide with the proposed screens.

Site Conditions

- 2.6 At the proposed location of the screens the M4 is a straight section of carriageway with two lanes in each direction. One of the screens would be visible to north-westbound drivers and one visible to south-eastbound drivers.
- 2.7 The speed limit along this section of M4 is signed at 50 mph and is enforced by average-speed cameras.

- 2.8 On the south-eastbound carriageway there is a motorway junction approximately 1.3 kms to the southeast of the screens. The 1-mile advance direction sign (ADS) is located 190 metres in advance of the screens and the ½ mile ADS is located 540 metres after the screens. There appear to be no other signs between the 1-mile ADS and the screens.
- 2.9 On the north-westbound carriageway there is a motorway junction approximately 770 metres prior to the screens. At this location there is an overbridge taking A48 traffic over the M4. This is located approximately 330 metres southeast of the screens. There is a route confirmatory sign located approximately 380 metres prior to the screens, and a Services sign approximately 370 metres after the screens.
- 2.10 The location of the screens is an appropriate distance away from all important signing and junctions so as not to distract drivers. (NOTE: the location of average speed cameras and ancillary signing is unknown at the time of writing.)
- 2.11 The M4 along this section of carriageway is lit during the hours of darkness with street lighting columns and luminaires within the central refuge. Any potential luminance / driver dazzling issues from the screens are discussed later in the report.
- 2.12 The M4 two-way traffic flow at this location is approximately 68,000 vehicles per day (2017 data).
- 2.13 At the proposed location of the screens Baglan Way is a straight section of carriageway with a single lane in each direction. One of the screens would be visible to north-westbound drivers and one visible to south-eastbound drivers.
- 2.14 The speed limit along this Baglan Way is 30 mph.
- 2.15 The nearest junction on Baglan Way to the south-eastbound of the proposed screens is approximately 90 metres and 500 metres to the northwest.
- 2.16 The location of the screens is an appropriate distance away from all important signing and junctions so as not to distract drivers.
- 2.17 Baglan Way is lit during the hours of darkness. Any potential luminance / driver dazzling issues from the screens are discussed later in the report.

3 RISK ASSESSMENT

Elonex rightly consider their civil responsibilities very seriously with relation to maximising road safety for the travelling public when seeking and operating their advertising displays.

3.1 The principal aim of advertising is to attract attention. This can present a road safety issue should advertising distract road users from the task of operating a vehicle in a safe manner. The trend towards the use of new and more powerful digital technology for advertising has increased the potential for distraction. In effect, the presence of roadside advertising can potentially:

- Distract drivers from the driving task;
- Compete with traffic control devices (mandatory / warning road signs, traffic signal heads etc) for the road user's attention;
- Result in visual clutter to the extent that traffic control devices cannot be easily seen and recognised by road users;
- Obscure or interfere with a road user's view of other vehicles and pedestrians;
- Pose a hazard to errant vehicles;
- Dazzle or cause discomfort to approaching road users where illuminated or reflective;
- Encourage stopping, slowing down or turning movements in inappropriate locations (this includes instances where drivers may be tempted to slow down / stop to view an advertisement due to illegibility);
- Desensitise road users to the presence of signage, thereby undermining the impact and credibility of traffic control devices.

3.2 When determining the highway safety component of the proposed location of the screens the following criteria have been assessed:

CRITERION	YES	NO	N/A	Comments
Is the advertisement located in an area that has a low collision rate?	X			See 3.3
Is the advertisement located such that it does not create a confusing or dominating background, foreground or surrounding which might reduce the clarity or effectiveness of a traffic control device?	X			See 3.4
Is the advertisement located such that it does not obstruct a road user's line of sight of other traffic control devices, or at an intersection, curve or point of egress from an adjacent property?	X			
Does the advertisement meet relevant clearances?	X			See 3.5
Is the advertisement located outside of areas where a high level of driver concentration is required?	X			
If the advertisement is attached on a bridge (rail, road, pedestrian) or other transport-related infrastructure, is the advertisement located and attached such that it does not interfere with the integrity and function of the bridge or other infrastructure?			X	
Is the advertisement designed such that it cannot be mistaken for a traffic control device or it gives instructions to road users?	X			
Is the advertisement designed such that it does not 'dazzle' or distract the driver due to its size, design or colouring, or it being illuminated, reflective, animated, changing, moving or flashing?	X			
Is the advertisement designed such that lighting effects do not increase road safety risk?	X			See 3.6
Does the sign contain an error detection system?	X			See 3.7
Is the advertisement designed such that it does not contain movement or any special effects that create the illusion of movement?	X			See 3.8
Do the messages change at frequency intervals appropriate for the location?	X			6 adverts changing at 10 second intervals

- 3.3 Historic recorded collisions on the M4 in the vicinity of the proposed screens are discussed in Section 4.
- 3.4 The proposed screens will not obstruct any motorway signage; the nearest being the ADS 190 metres in advance of the screens on the south-eastbound carriageway. The screens cannot be confused for road signs due to restrictions given in various guidelines on advertising material. Although some random lane-changing is likely in the vicinity of the screens other comparison sites studied show that there is not necessarily a detrimental effect on public safety created by roadside advertising even at sites where merging / diverging takes place, or where high vehicle speeds and high traffic flows are prevalent. This suggests to some extent that the dangers of roadside advertisements may have only a perceived, rather than actual risk to highway safety and the travelling public.
- 3.5 The clearance between the M4 main carriageway and the proposed screens has been discussed in Section 2 above.
- 3.6 As already mentioned in Section 2.2 above, the signs' luminance, above ambient luminance, for daylight and darkness conditions for these screens in-situ, is 300 cd/m². This ensures that the screens will not dazzle drivers. The advertisements displayed will accord with latest guidance on roadside advertising.
- 3.7 Sensors mounted on the screens monitor the luminance at all times and the luminance is remotely adjusted as and when required. There is an error and fail-safe system for the screens which means that they can be shut down remotely.
- 3.8 Static imagery advertisements are proposed.

4 COLLISIONS

- 4.1 For the 5-year period January 2015 to December 2019, inclusive, there have been three recorded collisions on the M4 within a 150-metre radius of the proposed screens location, resulting in three slight injuries to vehicle occupants. For information, a 150-metre radius has been used as outside of this area there is unlikely to be any driver distraction caused by the advertisement screens. There have been no recorded collisions on Baglan Way during the same time period.



**M4 COLLISIONS IN VICINITY OF PROPOSED SITE
(2015 to 2019 inclusive)**

- 4.2 A brief analysis of the collisions is as follows;

Collision 1 – Involved a single vehicle which lost control and collided with the central safety barrier, resulting in one slight injury;

Collision 2 – Involved a car colliding with the rear of another car, resulting in one slight injury;

Collision 3 – Involved a car colliding with a van which was slowing down, resulting in one slight injury.

- 4.3 Recorded personal injury collisions on the M4 show a low collision rate within a 150-metre radius of the proposed sign location. Investigations undertaken at a number of other existing advertisement sites on motorways suggest that the presence of advertising does not increase the occurrence or severity of personal injury collisions.

5 DISCUSSIONS

- 5.1 The advertising screens are solely within private land and do not interfere with the operational limits of the M4 motorway highway boundary. As there is potential effect on drivers using the M4 the Borough Council has an obligation to *consult* with the Welsh Government as highway authority for the M4 motorway. In deciding whether to approve a planning application for advertising purposes, the planning authority may consider only two issues, described in the planning guidance as the interests of **amenity** and **public safety**. ('Outdoor advertisements and signs: a guide for advertisers' refers.).
- 5.2 This report deals solely with the public safety aspect of the planning application. '**Public safety**' means the considerations which are relevant to the safe use and operation of any form of traffic or transport on land, (also over water or in the air). So, for this purpose, the planning authority must assess the likely effects of the advertisement screens in relation to such matters as the behaviour of drivers and possible confusion with any traffic sign or signal. The planning authority should consider whether the location of the advertisements will be so distracting or so confusing that it creates a hazard for, or endangers, people who are taking reasonable care for their own and others' safety.
- 5.3 It is normal to provide a minimum 1-metre clearance between the highway boundary and any structure (e.g. sign) for maintenance of other street furniture on high speed roads including boundary fences, drainage provision and communication cables. Approximately 13 metres lateral clearance from the existing vehicle restraint barrier to the screens is proposed.
- 5.4 The trend of surveys / research seems to be that, while proven percentage of collisions / incidents caused by roadside advertising signage is very low, there can be a significant adverse effect to safe driving. At present there is no overall consensus on the potential or actual distraction caused by roadside advertisement. Until tests on LED advertising screens can be carried out over a prolonged period there can be little statistical evidence either way.
- 5.5 Surveys of other advertising sites including the 12-lane section of the M25 near Heathrow Airport, show that there is not necessarily any detrimental effect on public

- safety created by roadside advertising, even at sites where merging / diverging takes place or where high vehicle speeds and high traffic flows are prevalent. This suggests to some extent that the dangers of roadside advertising may have only a perceived risk, rather than an actual risk, to highway safety and the travelling public.
- 5.6 Research has shown that other 'in-vehicle' driver distractions (such as smoking / vaping, operating satellite navigation systems, operating entertainment equipment, talking to passengers), which are constantly occurring, appear to have a more detrimental effect as distractions than intermittent driver 'out-of-vehicle' distractions such as glancing at roadside advertising.
- 5.7 Although there is likely to be some weaving on this section of the M4 motorway it is unlikely to be significant due to lack of converging / diverging manoeuvres as there are no nearby junctions. Neither is there any informatory, mandatory, or directional signing from which the proposed signing could distract drivers' attention. Historic collision data shows a very low collision rate through this section of the M4.
- 5.8 The advertisements utilised by Elonex for displaying conform to roadside advertising standards. From my experience their LED screens are clear, concise, with appropriate images, and with little or no reflection from the screen face. Road Safety Assessments are undertaken for the majority of their proposed roadside advertising screens, which include investigating the collision history in the vicinity of the sites. These assessments are used by Elonex to mitigate any potential road safety issues that might arise from the provision of their LED screens.
- 5.9 A 10-second change time is proposed but could be negotiated under Conditions, then reviewed over time, dependent on complaints, issues or collision history. A vehicle travelling at 50 mph will take 6 seconds between the driver being able to clearly see the screen and passing it, resulting in a maximum of 2 advertisement being visible to them.
- 5.10 It should be noted that, up to 2017 at least, there were two large billboards measuring approximately 14 x 6 metres located on private land and adjacent to, and visible to drivers on, the M4 motorway, some 300 metres to the northwest of the proposed screens. Historic collision data shows that there were only five recorded slight injury collisions within 150-metre either side of these billboards

between 2008 and 2017 when the signing was known to be present suggesting little or no distraction effect of the signs. Therefore, a planning application must have been approved in the past for advertising hoarding to be present in a similar location to the screens now proposed.

In summary, the location of the LED screens is unlikely to present a greater distraction to drivers than any other in-vehicle or out-of-vehicle distraction they are faced with, nor would the screens create confusion or distraction for drivers away from important regulatory or warning signage.

6 CONCLUSIONS

- 6.1 The advertisements proposed for displaying by Elonex conform to roadside advertising standards. From my experience their LED screens are clear, concise, with appropriate images, and with little or no reflection from the sign face. The location for the proposed signing does not give rise to conflicts with important motorway signing and there appear to be no potential risks in providing the proposed signage at the proposed location.
- 6.2 Surveys undertaken of other advertising sites on motorways show that there is not necessarily any detrimental effect on public safety created by roadside advertising, even at sites where merging / diverging takes place, or where high vehicle speeds and high traffic flows are prevalent. This suggests to some extent that the dangers of roadside adverts may have only a perceived risk, rather than an actual risk to highway safety and the travelling public.
- 6.3 Some of Elonex's roadside signing has been actively employed on occasion by Highway's England in giving out real-time information and public safety notices to drivers. Therefore, this type of signing is also beneficial to providing safer motoring and should be considered, in part, as an asset by the local highway authority and the Welsh Government.
- 6.4 In my professional opinion and particularly in view of the low collision rate near the existing signing provision, I would consider that new signing proposed by Elonex at this location would not give rise to an increase in potential hazards for road users. Any concerns on the detriment to road safety is not borne out by the collision statistics at this location nor other busier high-speed road sites, nor by surveys / research. Interference to 'operational highway assets' on the M4 are not an issue as the screens are to be provided on private land.

7 ABOUT THE AUTHOR

CA Traffic Solutions LLP is an independent transport, traffic and road safety consultancy providing reliable, personalised expertise in Road Safety Audits, Accident Route Strategies, Collision Investigation and Prevention and other reactive / proactive road safety engineering, and highway design.

Clive Ashby, Partner, has nearly 50 years experience in transportation, highways, and traffic and road safety engineering. He is an Incorporated Engineer, a Fellow of the Society of Road Safety Auditors; a Fellow of the Institute of Highway Engineers; a Fellow of the Chartered Institution of Highways and Transportation; and a registered Road Safety Auditor with the Institute of Highway Engineers.

Clive has prepared over 800 Road Safety Audits for international clients including Mott MacDonald Group, WS Atkins, TMS Consulting, and for a number of Local Authorities such as Transport for London (including Safety Auditing of the 2012 Olympic Route Network), Gloucester City Council (winner of the first Department for Transport's Safer City Project), and Cornwall County Council.

Clive has undertaken a number Road Safety Audits on digital advertising display in London for Transport for London notably those on Euston Road Underpass (A501), Marylebone flyover (A40), and Chiswick Roundabout (A4 / M4), and of variable message signing, and has introduced variable message signing on the M5 and M42.

Clive has extensive experience in GG119 (previously HD 19/15, HD 19/03 and IAN 152/11) and in GG104 (previously GD04/12 and IAN 191/16) and in working on high speed roads.

Clive has had 25 years experience as an independent consultant starting as Project Leader at Gloucester City Council for the Pedestrian Priority of Northgate and Southgate Streets, for which he prepared and presented traffic engineering / transportation evidence to a successful Public Inquiry.

Clive has also been an independent consultant with WS Atkins (then agents for Somerset County Council) as Project Manager within the Development Control section, giving advice and supervision to developers.

Prior to starting a consultancy business in 1995 Clive was employed at Gloucester City Council for almost eight years: five of those as team leader in the traffic and transportation section, dealing with all types of traffic and transportation issues and being involved with decisions on planning applications. He was involved in managing the Adshel bus shelter agreement which provided the Local Authority with free shelters on strategic routes into and out of the City in exchange for advertising placements.

Before Clive's position with Gloucester City Council he held traffic engineering posts with Hereford and Worcester County Council and London Borough of Ealing, and a scientific post at the Transport and Road Research Laboratory (TRRL) (now Transport Research Laboratory). At TRRL he was involved in research into the introduction of narrow lanes and contraflows on motorways, introduction of mini-roundabouts, introduction of traffic calming measures and conspicuity of road signs.

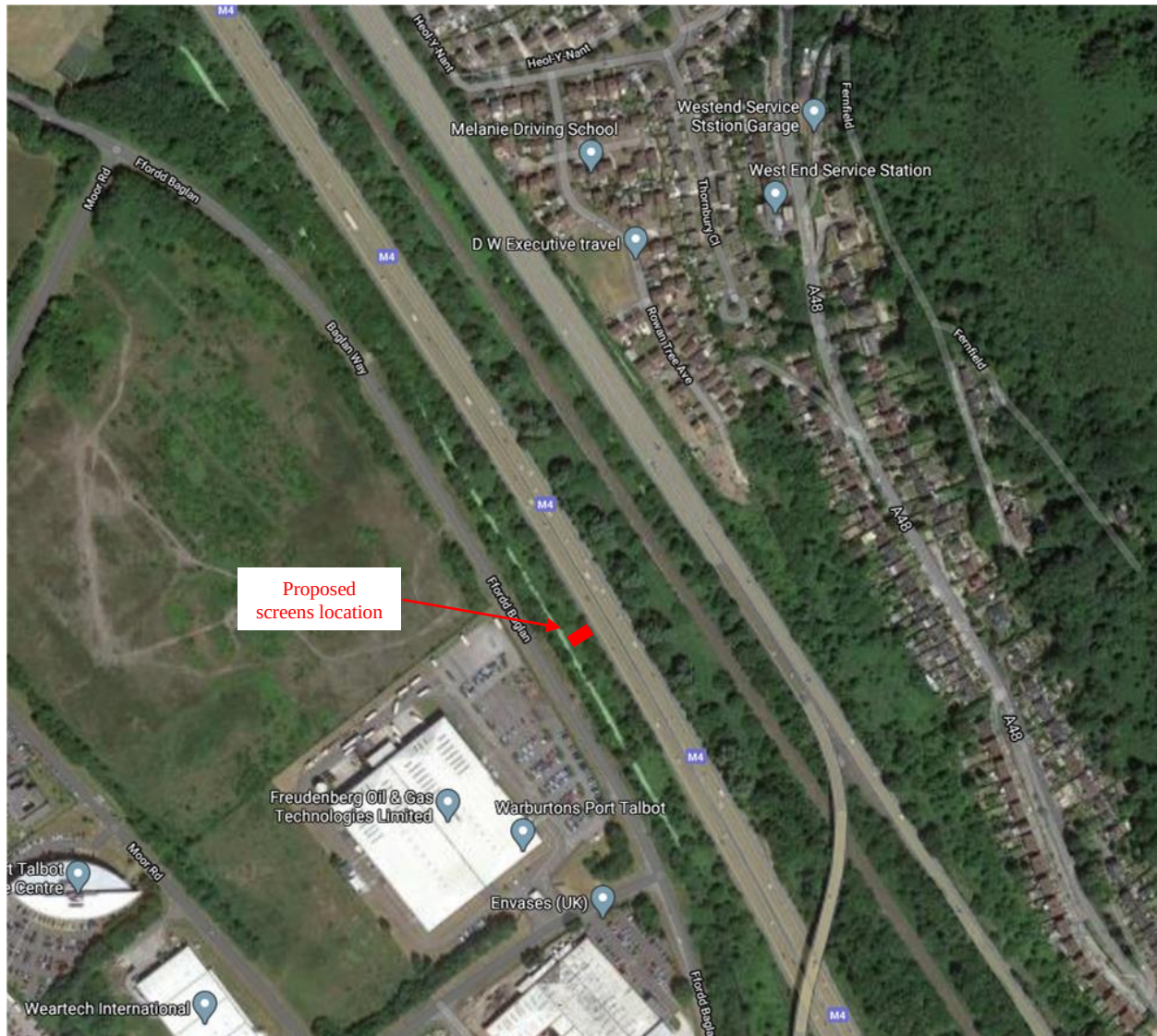
Recent work has been providing risk assessments to BOOH Media PLC for LED advertisement provision at all 'Roadchef' operated motorway service areas (MSAs) both for MSA traffic and more recently to motorway traffic passing the MSAs. This has involved research into a number of sites on Highway England's motorway network.

Clive was Chair of Planning for Empingham Parish Council (Rutland) from 2005 - 2007.

Clive has experience of providing expert witness evidence to public inquiries, planning hearings, the High Court and Judicial Review.

APPENDIX A: SITE PLAN AND ADJACENT ROAD NETWORK

PROPOSED SITE



APPENDIX B: SCREEN DESIGN AND VISUAL PERSPECTIVE

SCREEN DESIGN AND VISUAL PERSPECTIVE



North-westbound view



South-eastbound view

