Advertising Devices Technical Standards

For Advertising devices with Illumination and/or Electronic Display Components (EDC)

This **standard** was made by the Executive Management Team on 19 May 2021 under Section 58 of the *Advertising Devices Local Law 2021*.
Commencement date – 21 May 2021

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1. Introduction

The Advertising Devices Technical Standard (the standard) is intended as a clear and practical guide to achieving safe and effective advertising in the Brisbane City Council (Council) area. Its scope only involves advertising devices with illumination and/or an Electronic Display Component (EDC), and only defines criteria in terms of impacts to traffic safety and built environment amenity.

The main purpose of this standard is to advance the purposes of the *Advertising Devices Local Law 2021 (*the local law*)* to ensure advertising devices are located, designed and operated to complement or avoid (where practicable) or minimise their adverse impacts on essential standards of public safety such as the safe and efficient operation of the transport network, including the movement of pedestrians, cyclists and vehicles.

It achieves this through defining technical criteria to support the consistent and effective administration of the local law*.*

This standard applies to all illuminated and EDC advertising devices, and includes advertising devices that have been designated as a permitted advertising device.

Such technical criteria enable Council to provide:

- more consistent assessment and compliance outcomes, leading to a consistent quality of advertising
- greater transparency for those processes
- a reference document to assist applicants to plan a proposal for an advertising device with illumination and/or EDC.

Intended users of this document are people requiring technical criteria for advertising devices with illumination and/or EDC, for example:

- businesses producing and/or requiring such advertising devices
- Council officers performing assessment or compliance activities for such advertising devices
- members of the public wishing to display such advertising devices, or concerned about such a particular advertising device.

***Please note**: Information in this document only provides assistance in the control of some aspects of advertising devices. It is not intended to be used to wholly determine whether advertising is acceptable in a given situation.*

Although specific recommendations on advertising devices are included, each proposal will be treated on its own merits having regard to its purpose, nature and location. When assessing an advertising device application or investigating a compliance issue, Council's Compliance and Regulatory Services officers may choose to request expert advice at any time to assist in determinations made according to this standard.

1.1 Relevant Standards and Documents

Australian Standards

- AS/NZS 4282: 2019 *Control of the Obtrusive Effects of Outdoor Lighting* — (or, if superseded, as per current equivalent)
- AS/NZS 3000 Australian Wiring Rules, (or, if superseded, as per current equivalent)

Queensland Government

- *City of Brisbane Act 2010*
- QLD Govt. Department of Transport and Main Roads (DTMR) *Roadside Advertising Guide* — August 2009 (or, if superseded, as per current equivalent)

Brisbane City Council

- *Advertising Devices Local Law 2021*
- *RN11 Roadside Advertising Devices Procedure*, Traffic Planning and Operations, Brisbane Infrastructure, 8 May 2007)
- Brisbane City Council's *Schedule of Fees and Charges* (part of each Annual Budget Document as Appendix A)
- Council's requirements for advertising devices and the application process is located on Council's website.

2. Definitions

Definitions for the purpose of this standard:

Term	Definition
Advertising Device[1]	Means a temporary or permanent sign, structure or other device used for advertising including a structure, or part of a building, the primary purpose of which is to support the sign, structure or device but does not include— (a) an umbrella, marquee or portable shade structure that displays advertising where the umbrella, marquee or portable shade structure is used for the purpose it was designed and manufactured for; or (b) advertising displayed on a vehicle or vessel used— (i) for public transportation; or (ii) for the primary purpose of a person conducting a trade or business; or (c) skywriting or sign-writing by an aircraft; or (d) official traffic signs installed in accordance with the *Transport Operations (Road Use Management) Act 1995*.
Assessing Officer	A Brisbane City Council Compliance and Regulatory Services Officer assigned an assessment application.
Conflict Area[2]	Means an area for vehicle interaction involving diverging, merging, crossing and weaving vehicle movements.
Crash Rate	Refer to definition in Section 4.4: 'Crash Rates'.
Critical decision distance	Refer to Section 4.3: 'Critical Decision Road Sections (CDRS)'. For the purposes of this standard, such determination involves contextual analysis, with the process to be defined by an Operational Guideline document.
Critical Decision Road Section/s (CDRS)	Refer to Section 4.3: 'Critical Decision Road Sections (CDRS)'.
Device/s	For the purposes of this standard, advertising devices with illumination and/or Electronic Display Components are referred to as 'devices'.
Dwell Time	Means the minimum time required for the display of each of the individual advertising devices capable of changeable content.
DTMR	Queensland Government Department of Transport and Main Roads.
Electronic Display Component (EDC)	Means part or the whole of an advertising device which utilises an image projector, bulbs, LEDs, LCD or similar devices which are used to present content on the advertising device.

[1] Queensland Government, Department of Transport and Main Roads, *Roadside Advertising Guide,* Edition 1.1, August 2009.
[2] Ibid

Illumination	Defined as the luminous power per unit area incident on a surface. The SI unit is lumens per metre squared (lm/m²) or lux. For the purposes of this standard, Illumination includes light being directed onto an advertising device, and/or being produced by an advertising device, including an EDC. Illumination does not include reflective letters or strips.
KSI (Killed or Seriously Injured)	Is a term used in crash statistics to describe crashes that result in a fatality or hospitalisation.
Low Impact EDC Sign	Means an advertising device in which the electronic display component is 4m² or less.
Luminance	Defined as the luminous power that leaves a source per unit solid angle and unit projected area of that surface. The SI unit is the candela per square metre (cd/m²).
Official traffic sign	Means a sign, marking, light or device placed or erected to regulate, warn or guide traffic.
Phototropism	Means the movement of the eye to fixate on bright points in the field of view.
SI Unit	Means any of the units adopted for international use under the Système International d'Unités, now employed for all scientific and most technical purposes. There are seven fundamental units: the metre, kilogram, second, ampere, kelvin, candela and mole.
Total EDC display extent area	Means the area of an outer rectangle enclosing one or multiple EDC viewable from one side of a device.

3. Technical Objectives

3.1 Traffic Safety

The main technical objective of this document is to ensure a high level of safety for road users impacted by advertising devices with illumination and/or EDC. (*For the purposes of this document, they are referred to as 'devices'.)*

This is achieved by managing the competition for drivers' attention in locations where driving demands are greater, or where the road authority needs to convey important information to motorists on official traffic signs. Of particular importance is the regulation of advertising where traffic conditions require additional driver attention and decision making.

Of additional importance are variables that influence the distractive potential of outdoor advertising in the vicinity of designated traffic situations. These include, but are not limited to:

- the physical attributes of the device (e.g. luminance, size);
- the display content, especially when automatically changeable (e.g. message rotation speed, message dwell time characteristics);
- the location of the device; and
- the road speed environment.

Requests for further information from the applicant may be imposed on certain types of device proposals in proximity to the situations/locations as described above. Criteria contained within this standard will enable the determination of such situations and locations.

By employing a regime of 'critical decision distances' and 'limitation areas', the proposed location for a device can be assessed to determine whether the device may unacceptably contribute to driver distraction. The regime may also serve to indicate a possible acceptable solution where the demand on drivers may be sufficiently less.

3.2 Amenity

The other technical objective of this document is to ensure a minimum level of impact on desirable characteristics of the natural and built environment in which such advertising devices with illumination and/or EDC are installed, erected or displayed.

This is addressed in this standard through criteria presented for illumination and reflection. Overriding issues of scale, position, etc. with regards to amenity are addressed at a higher level in the assessment process, and so are outside the scope of this standard.

4. Location

This section applies to all advertising devices with an EDC.

4.1 Assessment Criteria

If a proposed location is reasonably suspected by the assessing officer to:

a) be located either within:

- a driver's field of vision behind any primary or secondary traffic signals, **or**;
- a CRDS or on a curve where the geometry, viewing angle or other factors make it undesirable;

and

b) the proposed device

- has a total EDC display extent area > 0.6m^2, **or**;
- has display content changes more often than hourly;

then the assessing officer must gain referral advice from a Council Transport Planning and Operations ('TPO') as to their approval of the proposal and to report whether the location:

1) is confirmed as being within a CRDS, or on a curve where the geometry or viewing angle or other factors make this location undesirable;
2) has an '*above average crash rate risk (CRR)',* or *a 'high KSI rate';*
3) has any other critical relevant safety issues known to Council;
4) whether a condition is required for data logging evidence to be provided to Council when requested for evidence of compliance (standard data format e.g. csv).

4.2 Further Requirements for Information

The compliance of the location will then be determined by the assessing officer in consultation with TPO. Council may also seek advice from other relevant sources.

Table 3 below explains when a Traffic Impact Analysis report may or must be requested from the Applicant, prepared and certified by a Registered Professional Engineer of Queensland (RPEQ) Traffic Engineer.

TABLE 3: *Location Assessment Outcomes*

<table>
<tr><th rowspan="2">Suspected to require TPO Advice?</th><th colspan="4">TPO Referral Outcomes</th><th rowspan="2">Required Outcome</th></tr>
<tr><th>Is in CRDS or undes. curve</th><th>Above Avg CRR?</th><th>High KSI?</th><th>Other Crit. Safety Issues?</th></tr>
<tr><td>N</td><td colspan="4">No TPO Referral required</td><td rowspan="2">EDC location assessed as compliant.
➢ Continue with assessment</td></tr>
<tr><td rowspan="2">Y</td><td rowspan="2">N</td><td colspan="2" rowspan="2">No crash analysis required</td><td>N</td></tr>
<tr><td>Y</td><td>Traffic Impact Analysis report may be required for consideration</td></tr>
<tr><td rowspan="2">Y</td><td rowspan="2">Y</td><td>N</td><td>N</td><td>N</td><td>EDC location assessed as compliant.
➢ Continue with assessment</td></tr>
<tr><td colspan="3">Any Y</td><td>Traffic Impact Analysis report must be required for consideration</td></tr>
</table>

4.3 Critical Decision Road Sections (CDRS)

'Critical Decision Road Sections' involve typical situations or locations where road and/or traffic conditions would require additional driver attention and/or decision making. For the purposes of this standard, they are generally described as being within contextual proximity to either a:

a) Roundabout
b) Cross intersection
c) School zone
d) Railway level crossing
e) T-intersection
f) Terminating lane
g) Mid-block pedestrian facility area
h) Y-intersection
i) Where an official traffic sign is displaying an important message
j) Intersection or section/s of road, which, because of lane configuration or geometry, may require an increased level of driver concentration
k) A section of a road (or intersection) reasonably believed to be significantly more different or complex than would normally be expected, due to the single or combination display of either traffic signals, or directional, regulatory and/or advisory signage (e.g. at this intersection or section of road it would be reasonably expected that the required driver reading and interpretation period of the traffic control devices would be significantly longer).

Determining whether a proposed location is within a CDRS involves contextual analysis of situations such as those listed above and is to initially be estimated by the assessing officer and, if suspected, then confirmed by a TPO Senior Traffic Engineer. Council may also seek advice from other relevant sources. *An Operational Procedure document is to be produced to support that process*.

4.4 Crash Rates

The following criteria define inputs to the assessment process designed to manage risks identified by Council.

a) An '***above average crash rate risk'***, *defined as:*

Crash data (from any relevant source) considered by a TPO Senior Traffic Engineer to indicate an above average level; for any section of road within 100m of the proposed site, or as determined a relevant road section by the TPO Senior Traffic Engineer. *NB: Analysis must include consideration of recent significant increases in crash data and all directions a sign will be visible from.*

b) a '***high KSI rate***', *defined as:*

Crash data (from any relevant source) considered by a TPO Senior Traffic Engineer to indicate >= 3 KSI crashes within the last five years *(from date of application received)* recorded for any road sections within 100 m of the proposed site.

4.4.1 When sufficient Crash Data is unavailable

When sufficient Crash Data is unavailable
If sufficient crash data is not available to determine adequate Crash Rate/History, then a Traffic Impact Analysis report for the proposed advertising device may be required to be provided to Council by the Applicant (prepared and certified by an RPEQ Traffic Engineer). Council may also seek advice from other relevant sources.

5 Display Content

This section applies to all advertising devices with illumination and/or an EDC.
NB: As illuminated changeable content is not exclusive to EDC technology, this section has parts that could apply to advertising devices with either:

- *external Illumination (i.e. Illumination directed at the Device), and/or*
- *internal Illumination, and/or*
- *an Electronic Display Component (EDC),*

as well as some specific parts only related to advertising devices with EDC.

5.1 Changeable Content Dwell Times

Any advertising device capable of changing the message displayed must adhere to the following criteria. Examples of such devices include but are not limited to:

- Tri-vision signs
- Mechanical scrolling signs
- EDC, e.g. digital displays.

Each of the individual messages must be displayed for a minimum amount of time (defined as the 'Dwell Time'). Minimum dwell times will be determined based on the fastest signed traffic speed limit of any road section where a driver would reasonably view any of the proposed EDC upon approach as determined by a CARS officer during an application assessment site visit.

Where the device is visible from a roadway:

a) where the signed speed limit is **<=** 80km/h, the minimum display dwell time must be eight seconds, or

b) where the signed speed limit is **>** 80km/h, Council Officers may seek advice from Council TPO Engineers and other relevant sources.

5.2 Specific EDC Content Conditions

5.2.1 Each EDC Image

Any images/messages displayed by an advertising device's EDC:

a) if an EDC is facing a road reserve and is visible to drivers: the EDC must not display any video and/or animated content
b) must not be split to display multiple advertising devices on the one electronic display component
c) must not imitate or emulate a traffic control device such as traffic lights or regulatory or advisory traffic control signs
d) must not instruct drivers to perform an action such as 'Stop', 'Halt' or 'Give Way', whether through using text and/or symbols reasonably known to have such a meaning
e) must not invite traffic to move contrary to any traffic control device, or turn where there is fast moving traffic
f) must not contain messages that are distractive or otherwise inconsistent with road safety
g) must be legible. A clear font must be used
h) must not be easily mistaken for traffic control signals, or 'stop' or 'tail lights' of moving vehicles by containing large areas of illuminated red or green display
i) must display (default to) a blank (black) screen in the event of a malfunction or failure of either the advertising device's EDC or related hardware/system/software. NB: Generic hardware screen messages & error messages must comply with the same requirements for its EDC display content
j) should minimise the amount of information displayed on the EDC to ensure the time required to read and understand the EDC's message is minimised.

5.2.1.1 Low Impact advertising devices with EDC

If an advertising device is a low impact EDC sign then:

1) any images/messages displayed must remain static, i.e. not move, flash or change in any way (e.g. brightness, colour, shape, size, etc.)
2) scrolling, moving or video images are not permitted.

5.2.2 Changeable EDC Behaviours

An advertising device's EDC changeable behaviours:

a) When an image changes the whole EDC display, it
    1. must change in less than 0.5 seconds (to prevent ongoing distraction during changes)
    2. should ideally change within 0.3–0.5 seconds (to minimise flash distractions, e.g. when the change includes high contrast change)
b) Must not use methods of display change such as 'fly in' or 'scroll' or any other type of message change.
c) Must not allow the screen to go blank between different images/messages. NB: Generic hardware screen messages and error messages must comply with the same requirements for its EDC display content.
d) May require data logging evidence to be provided to Council when requested in a current data format (e.g. csv). To be required for proposals where content behaviour standards are critical to traffic and pedestrian safety as it would help to provide evidence of compliance.

6.0 Illumination

This section applies to all advertising devices with either:

- external Illumination (i.e. Illumination directed at the Device), and/or
- internal Illumination, and/or
- an EDC.

Brightness is the visual sensation associated with luminance experienced by an observer. Brightness depends on four main factors:

- luminance
- size
- contrast
- the observer[3].

It is Council's preference to control the brightness of advertising which is either internally or externally illuminated, including those with EDC, because of the potential for installations which are too bright to impair the vision of drivers, and because of the phenomenon of phototropism. (Phototropism is the movement of the eye to fixate on bright points in the field of view.)

Due to the fast rate of change in ambient lighting during dusk and dawn periods, particular attention needs to be given to the luminance levels that are output during these periods to ensure that a consistent apparent brightness is maintained.

6.1 Illumination Restrictions

An advertising device which is externally or internally illuminated, including EDC, must:

a) comply with AS/NZS 4282:2019 Table 3.2 (Maximum Values of Light Technical Parameters) and Table 3.5 (Maximum Average Luminance of Surfaces (cd/m^2) for zones A0, A1, A2, A3 and A4
b) comply with AS/NZS 4282 Clause 3.3.5 (Lit Surfaces)
c) have all externally or internally lighting directed solely on to the advertising device and its surroundings
d) have any light source shielded so that the light does not extend beyond the advertising device
e) when located within 100m of a residential environment, be switched off between 10pm each night and 6am the following morning.

As part of the assessment, the applicant must submit an obtrusive lighting calculation and report showing compliance with this standard including AS/NZS 4282 clauses 3.3.5.5 and 3.3.5.6 and Section 4. The calculation and report must be prepared by a person who is professionally qualified and competent in the discipline of illuminating engineering or a registered professional engineer of Queensland.

[3] Queensland Government, Department of Transport and Main Roads, *Roadside Advertising Guide,* Edition 1.1, August 2009.

6.1.1 Luminance Levels

a) For a definition of the environmental zones, refer to AS/NZS 4282:2019 Table 3.1
b) For the purpose of this guide, the maximum average luminance for all types of advertising devices must not exceed the appropriate levels in Table 3.5 of AS/NZS:2019 4282 below. The methodology for determining the measurements of maximum average night luminance levels is detailed further below.
c) Any measured point must not exceed the maximum luminance values in Table 2.

Table 3.5 AS/NZS 4282: Maximum Average Luminance of Surfaces (cd/m^2)

Application Conditions	Environmental Zones				
	A0	A1	A2	A3	A4
Refer AS/NZS 4282 Clause 3.3.5.4	0.1	0.1	150	250	350

Table 2: Maximum Luminance of Surfaces (cd/m^2)

A2	A3	A4
300 cd/m^2	350 cd/m^2	500 cd/m^2

d) If Council officers reasonably believe the light emitted from an advertising device is causing a nuisance to a resident, Council will assess the sign based on the curfewed hour limits of Table 3.2 of AS/NZS 4282:2019 *Control of the Obtrusive Effects of Outdoor Lighting* (or, if superseded, the current equivalent).
e) Should the assessment find that the light exceeds the limits in Table 3.2 of AS/NZS 4282, Council must require the light output of the sources be reduced. The direct illuminance from externally mounted lights must not exceed the curfewed limits in Table 3.2 of AS4282:2019 (or, if superseded, the current equivalent).
f) If required, the owner/operator of the device is responsible for shielding the electronic device to ensure that it does not cause a nuisance to surrounding properties.

6.1.1.1 Methodology for measuring luminance

a) For compliance assessment purposes, when measuring the luminance the reading shall be taken after the advertising device has been allowed to 'burn-in', i.e. the light sources shall have been energised for more than 100 hours since installation. The 100-hour 'burn-in' requirement need not be continuous. The measurements shall be taken such that the angle of view is within the sign surface, i.e. cannot view any other source of light.
b) When conducting a measurement to determine the impact on traffic safety, the operator must take the measurement as near as possible to the driver position. The operator is to remain at a safe location all the time and be assisted with a spotter.

When conducting a measurement to determine the impact of light nuisance, the operator must take the measurement as close as practical to the impacted property.

The total average luminance result must be obtained by averaging multiple measurements covering the sign area. The maximum measured value is to be recorded.

6.2 Brightness Adjustment Timing

Devices involving changeable content illuminated in some form (either externally, internally and/or through EDC) can have the ability to automatically alter the brightness of the advertising device. Therefore, change to brightness levels must be applied during any transition of content and not while an image is being displayed. This removes the risk that a motorist will be distracted by changing sign brightness.

6.2.1 Automated Luminance Control for EDC

EDC can feature LEDs (light emitting diodes) and have the potential to include other electronic and digital forms of technology to display images.

Brightness levels can be controlled through the use of light sensors, which measure the amount of light available in the surrounding environment, and/or be altered remotely. For example, in the brightest sun the EDC may be at its brightest to provide the necessary contrast and enhance legibility. However, at night and during periods of dusk/dawn or cloudy storm conditions, an EDC can automatically adjust to be much dimmer according to the surrounding light conditions.

a) If an advertising device has **>**5m^2 of total EDC display visible from a road, a Feedback loop (such as PE cell) must be installed.

   It must automatically control the EDC behaviour to ensure that light levels can respond appropriately to surrounding sky luminance conditions (e.g. day vs. dawn/dusk vs. night time luminances).

b) Any related installation or works related to a) must comply with the following:

1) *All electrical services and systems are to comply with the current Standards Association of Australia Wiring Rules* and the requirements of the supply authority.*
2) *All conduits, wiring, switches or other electrical apparatus installed on an advertising device are to be concealed from general view.*
3) *No electrical equipment may be mounted on an exposed surface.*

(*AS/NZS 3000 Australian Wiring Rules (*or, if superseded, as per current equivalent)*

7. Reflectance

This section applies to all advertising devices with either:

- external Illumination (i.e. Illumination directed at the Device), and/or
- internal Illumination, and/or
- an Electronic Display Component (EDC).

It addresses the issue of reflectance (glare) due to the fact that vehicle headlights and low sunlight are both capable of illuminating an advertising device and the resulting reflections/glare may impact a driver's vision.

a) An advertising device's surface should have the lowest practical reflectance compatible with its function, as specified in Appendix A4 of AS 4282 2019 *'Control of the Obtrusive Effects of Outdoor Lighting'.* Note: The permissible level of reflectance of an advertising device will be influenced by the content in terms of tone and colour displayed.

b) The advertising device should be orientated in a way that does not create low sunlight reflections in the driver's line of sight or be a nuisance to pedestrians or residents.

c) The advertising device should be oriented in a way that does not create headlight reflections in the driver's line of sight or be a nuisance to pedestrians or residents.

As a guideline, angling a sign five degrees away from right angles to the driver's line of sight can minimise headlight reflections. On a curved road alignment, this should be checked for the distance measured back from the sign that a car would travel in 2.5 seconds at the designated speed.

Table 2: Curved road distances to assess angle of sign

Speed (km/hr)	Distance travelled (i.e. Distance to assess angle of sign) (m)
10	6.9
20	13.9
30	20.8
40	27.8
50	34.7
60	41.7
70	48.6
80	55.6
90	62.5
100	69.4

d) As per the AASLL 2013: Sch 4 P1 4 "Electrical Systems", Advertising devices must not contain reflectors, which could be mistaken for a traffic control device.

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