SIGN ASSOCIATION OF CANADA ASSOCIATION CANADIENNE DE L'ENSEIGNE

Sign Association of Canada

Electronic Message Center Basics

This publication has been produced by the Sign Association of Canada for use by sign companies and municipal planners. Through this information, we hope to enhance understanding of current technologies and common terminologies.

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Electronic Message Center Basics

Introduction

Electronic message center signs (EMCs) are ever increasing in popularity throughout Canada. What used to be single-colour, incandescent time and temperature units installed at local banks have grown into a dynamic medium allowing businesses to advertise their goods and services using picture-quality resolution in a timely and efficient manner.

Gone are the days of a sign owner venturing outside in the wind, rain and snow changing the letters on their manual changeable copy signs with a pole. Today's changeable copy can be operated from the comfort of a computer and can be designed to display whatever a sign owner chooses.

With the onset in popularity of EMCs, however, comes a need for effective regulation of the technology. EMCs can be designed and programmed to effectively operate in line with the tastes of all types of communities. It is a local regulatory entity's job to study and determine what usage allowances are acceptable for their communities.

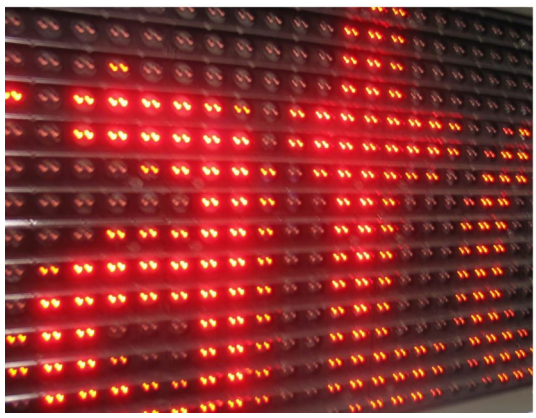
The following informational booklet is intended to educate those interested in regulating electronic EMCs within sign bylaws.

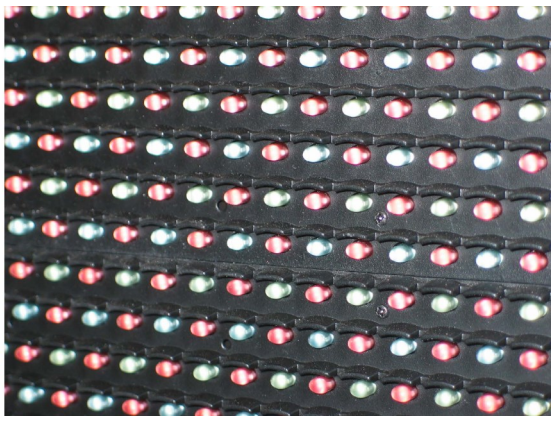
EMC Technology

Technology Overview

Electronic sign technology has significantly evolved and improved over the last 30 years.

The very first electronic signs were simply light bulbs placed in a specific pattern that were turned on and off in periodic intervals. From there, the technology evolved to include solid-state circuitry. This essentially consisted of bulbs placed over the entire sign face, that could be programmed to be turned on and off at different times, which allowed signs to display multiple messages.





So technology remained for the next couple of decades with moderate changes in lighting technology ranging from light bulbs prearranged to fashion a message that could be turned off and on, to the incandescent bulbs of the 1980s, until the lighting community invented an innovative breakthrough in lighting technology; the light emitting diode (LED).

LEDs are essentially small, energy-efficient bulbs containing a filament that illuminates when power is sent to them. Unlike traditional light bulbs that are a single illumination level, LEDs have the ability to brighten or dim depending on the amount of power sent to them.

The LED can be credited with the increased popularity of EMCs. Incandescent signs were only capable of displaying a single-colour, rudimentary message displaying capabilities and used large amounts of power to operate. Today's LEDs use a

combination of three colours (red, green and blue) to create all colours of the rainbow, using less power. They are also more easily legible in outdoor ambient light.

Today's technology combines LEDs into pixels. Pixels are groupings of the three LED colours (red, green and blue). The pixels combine into a module. Modules (pictured above) are essentially squares containing numerous pixels. These modules can be combined into various sizes of displays to make EMCs of virtually any size one chooses.

The combinations of the above characteristics form an EMC that is capable of displaying virtually any computer-generated or uploaded image foreseeable in trillions of colours. Such signs are also capable of displaying a wide variety of movement ranging from simply changing from one image to the next, to full-motion video.

Almost all EMCs, however, are equipped with controls that allow such signs to comply with limitations required by the law.

EMCs versus Digital Billboards

Many jurisdictions in Canada have not separated signs advertising the goods and services at the business on which the signs are placed (first party advertising) and signs advertising goods and services at locations other than where a sign is placed (third party advertising) in their bylaws. This lack of separation has led to significant confusion on how to regulate between first and third party digital signs (for the purpose of this booklet first party shall be referred to as EMCs and third party shall be referred to as digital billboards).

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It is important to note, however, EMCs and digital billboards have very distinct capabilities and purposes. Each targets a specific and different audience, and should be regulated differently.

For instance, some regulatory entities choose to treat first party EMCs like third party digital billboards. They place restrictions on spacing between one digital sign and another, without taking into account that the regulations are being applied to first party EMCs as well as digital billboards.

While technically a third party digital billboard can be located anywhere (as they are not limited to the premises for which they advertise), and thus can easily comply with spacing requirements, first party EMCs are limited to advertising on the premises on which they are placed. Spacing requirements on first party EMCs mean that if one business decides to install an EMC at their business, then their neighbors would be prevented from doing the same.

The above is just one example of how regulating EMCs and digital billboards as the same type of sign is inappropriate. Another example of why it is important to differentiate between EMCs and digital billboards is the size of each. Traditionally, first party EMCs are part of the allowed sign area for a property. This means they generally won't exceed 20 square metres, save for signs for large developments, or in areas needing larger signage. Conversely, digital billboards' smallest standard sizes are just over 22 square metres. Regulating the two together either allows for very large first party signs, or creates a de facto prohibition of third party signs, by limiting sign area to a size that is too small to advertise on.

Given regulations in Canada, a separation between first party and third party may be through separate regulations for each, or it could be through different regulations for different sign sizes.

Aside from the suggested differentiation language, for the purposes of this publication, we are focusing solely and exclusively on EMCs (first party signs).

EMC Brightness

EMC Brightness Regulation

The perceived brightness of an EMC is dependent on a variety of factors. Ambient light conditions play the largest role in affecting the brightness of the display.

An EMC communicates its messages by emitting light. It therefore must not be too dim, since it couldn't be distinguished in sunlight; nor should it be too bright, as the image will be distorted and difficult to read. The sign must adjust its brightness over the course of the day. Today's signs can adjust brightness from 100% during a bright sunny afternoon, to around 4% (depending on manufacturer and model) during the darkest night. That means the sign is only 4% as bright at night as during the daytime.

It is important to note that during the course of the day, EMCs will periodically adjust their brightness levels to ensure it is operating appropriately. This adjustment is possible because of the utilization of a light sensor. Currently, while the photocell is the preferred method, it is possible to meet the 0.3 foot candle standard using scheduled dimming and other dimming technologies. The goal is to get the sign to comply with the brightness standard.

While automatic dimming possesses the ability to appropriately adjust brightness to ambient light conditions, if a regulatory entity would like to place a specific brightness limitation on LED signs, the most user and regulation-friendly method is to incorporate foot candle limitations (or Lux limitations if a regulatory entity would like to incorporate the metric version of foot candles).

Foot candles (or Lux) measure the amount of light coming from a lit object and striking an unlit object at a given distance. In this case, the lit object is an EMC and the unlit object is one's eye. One foot candle is perceived brightness of the light from one wax candle striking one's eye at one foot away. One lux is perceived brightness of the light from one wax candle striking one's eye at one metre away. One foot candle is very close to 10 lux (the actual conversion is 1 foot candle to 10.76 Lux), and therefore, can easily be converted for ease in regulation.

The industry standard for measuring EMC brightness was developed by Dr. Ian Lewin, the former president of the Illuminating Engineering Society of North America. The standard is 0.3 foot candles above ambient light as measured from a preset distance depending on a preset sign-to-viewer distance. The measurement can be taken simply by using a foot candle (Lux) meter held at a height of approximately five feet (eye level) and aimed towards a sign consistent with a sign-to-viewer distance. The measurer takes one measurement with the sign turned off (to record an ambient light reading), and then takes another measurement with the sign turned on. A difference in the two readings of no more than 0.3 foot candles indicates compliance. Copies of the study from which the standard was developed are available by contacting the Sign Association of Canada at info@sac-ace.ca.

Regulatory entities that would like the metric version of foot candles (Lux) simply need to draft their regulations to require 3 Lux above ambient light versus 0.3 foot candles, as the two are very similar levels. Sample brightness language can be found on page 17.

EMC Usage

Usage Considerations

Oftentimes when regulatory entities first consider EMCs they automatically think of Young Dundas Square or Las Vegas, with their wide array of flashing and full-motion video. However, they may not be aware that EMCs come equipped with controls

preventing flashing, full-motion video, etc. that can be applied depending on the regulation.

EMCs can be programmed to comply with almost any regulations a jurisdiction chooses to implement. If a jurisdiction chooses to permit such signs with static images only that simply change from one message to the next, EMCs can be programmed to comply. If a jurisdiction would like to allow limited movement such as fade or dissolve as a means to transition from one message to the next, while limiting the main message to static images only, EMCs can be programmed to comply. If a jurisdiction would like to permit animation in their commercial and industrial areas while prohibiting flashing, such signs can comply.

The above stated, there are several considerations a regulatory entity must take into account when considering regulations for EMCs. These generally are:

- Where do we want EMCs?
- How often should we allow EMCs to change their messages?
- Do we want to allow the appearance of movement?

Where do we want EMCs?

Businesses can greatly benefit from EMCs. Additionally, the U.S. Small Business Administration has estimated that the installation of an EMC can increase revenues anywhere from 15 to 150 percent. That increase also positively impacts a community by increasing their tax base.

It is also important to note that noncommercial entities, that are generally located in more residential areas, such as schools, churches and governments (parks, city halls, etc.) can greatly benefit from the ability to inform the public of multiple items of information in a timely and effective manner.

However, EMCs may not be appropriate for all areas. Therefore, when considering locations for allowances of EMCs regulatory entities need to consider various stakeholders.

Generally, the more commercial activity in an area the more lenient regulations can be, and the more residential activity in an area, the more restrictive regulations should be.

Options for allowing EMCs in residential and/or more protected areas could be to require a special review or permit. That would allow schools and churches that are generally located in more protected areas the option to seek a permit, but still allows for some say in the process from their residential neighbors. However, such special permits are generally not needed in commercial areas, because they conform to the character of the higher intensity use.

How often should we allow EMCs to change their messages?

It is ultimately up to an individual regulatory entity to decide what usage allowances are appropriate for them. However, sometimes regulators may feel that the longer amount of time a message must remain static before changing (or hold time), the better their regulation will be. This is not the case. A static image is a static image, and if an entity is requiring a static image, they do not need to place restrictive hold times on EMCs to create a better code.

Rarely do signs that are displaying static images lead to complaints. It is the method of change and/or the movement on the display that can potentially lead to the complaints, if inappropriately located in proximity to protected areas. While movement can be seen as increasing the sense of vitality to a commercial area, it can also lead to complaints in

areas that are more residential in nature. Placing a reasonable hold time on EMCs in some areas prevents complaints, but still provides a business, school or church the opportunity to display multiple messages in a timely and effective manner.

Hold times ranging from three to 10 seconds are generally considered reasonable and appropriate; whereas hold times over 10 seconds are generally seen as excessive and unneeded. This is especially true given that numerous safety studies have found digital signs changing as reasonable intervals similar to those mentioned above to be safe and appropriate. We will discuss the safety aspect of EMCs on page 14.

Do we want to allow the appearance of movement?

As previously stated, the allowance of movement can be very beneficial in some areas. It allows businesses to display aspects of products that can't be displayed by static images or text. It can increase the vitality of commercial areas. Therefore, regulatory entities should approach the allowance of movement with an open mind.

It is also important to consider what types of movement should be permitted. There are significant differences between animation (similar to a waving flag or falling leaves in the background of a message) and full-motion video (which appears to have been shot by a video camera). Additionally, there are differences between animation and frame effects. Frame effects are applied at the end of a message to help it transition from one message to the next. An example of a frame effect would be the fading out or dissolving of one message and then the fading in or dissolving into another message. While animation and frame effects may be appropriate in typical commercial areas, full motion video might be reserved for downtown entertainment districts.

Finally, the use of flashing, which is the rapid on/off displaying of a message, similar to a strobe light, should be prohibited in all areas, as the use has no informative value and is solely for the purpose of distraction.

EMC Safety Information

Many jurisdictions considering regulations on EMCs fear that allowing this technology to be used in signage will lead to an increase in traffic crashes. These fears are unfounded. The LED technology inherent in electronic message centers have been studied for over 30 years and have never been found to be a hazard to the traveling public.

Studies from reputable organizations such as Texas A&M, Virginia Tech Transportation Institute, Tantala Associates and even the U.S. Federal Highway Administration studied digital signs and have found them to be safe and appropriate.

The various Provincial Governments and U.S. Federal Government and have accepted the use of this technology in signage along the roadways. In fact, EMCs are found throughout Canada and the United States.

There are two basic types of safety studies in the United States: Statistical and Human Factors. Neither type of study has ever shown that digital signs cause an increase in crashes or are a hazard to the traveling public. Statistical studies look at multiple locations and attempt to determine whether the introduction of a stimulus (in this instance an EMC) caused an increase in crashes. The study begins by looking at traffic data at specific locations, for a number of years before the digital sign is erected. This data provides a baseline by which to judge whether there was an increase in crashes. The researcher then analyzes the same data that is present for these locations after the digital sign is erected.

No statistical study has ever shown that digital signs cause an increase in crashes. In fact, a 2012 study by Texas A&M University researched over 120 locations of EMCs in four states, and found that there is "no statistically significant impact between the installation of on-premise digital signs and an increase in crashes."

Human Factors studies look at the way in which a stimulus affects a driver. Such studies have been done on any number of stimuli: eating and drinking, changing the radio-A/C dials, texting, etc. This type of study looks at how a driver may become distracted by a stimuli and how such distraction could increase the likelihood of a crash.

No such study has ever found that digital signs are so distracting as to be the cause of crashes.

EMCs and Aesthetic Considerations

Some communities are concerned with the impact of EMCs on the visual environment. Most concerns regarding aesthetics can be resolved with effective regulation. Proper brightness standards and regulated content presentation standards can resolve the majority of aesthetic concerns. When properly regulated and utilized, EMCs can actually enhance community aesthetics.

Electronic Message Center Basics

The manually-changeable reader board, an ancestor to EMC technology, is common in most communities. Mismatched letters, bland fonts, and other design limitations make a reader board to EMC conversion an improvement in aesthetics. A properly regulated EMC is considered by some to be more attractive than a traditional reader board.

Another example of sometimes aesthetically-displeasing signs is multi-tenant panel signs that can be found in many retail multi-tenant shopping centers. Frequently these signs are packed with a long list of tenants, which are functionally invisible to the motoring public. Such lack of visibility affects the viability of the retail center, and unviable businesses can eventually become an eyesore. Allowing an EMC in a retail shopping center can give tenants the visibility they need, replace functionally invisible signs with an effective sign without increasing over all square footage, and thus improve the aesthetic appearance of the shopping center.

Lack of visibility and the ability to change advertising messages often results in some business owners using alternate methods to get the message out. Ironically, prohibitions or severe restrictions on EMCs can result in the very thing such sign codes are intended to avoid; namely, visual clutter by excessive signage. By allowing properly regulated EMCs to operate in a community, you can avoid these aesthetically objectionable

behaviors from occurring. If a business owner is able to use an EMC, the need for excessive banners and other forms of visual clutter are eliminated.

Associating these signs with Las Vegas is a common concern voiced in the debate over EMCs and aesthetics. A closer look at the size, height, spacing and content delivery methods on signs on the Las Vegas strip reveals that this comparison is inaccurate. Signs on the Las Vegas strip have few or no set back requirements, spacing limitations, or height restrictions. It is not uncommon for signs on the Las Vegas strip to exceed two hundred feet in height, and most of the larger signs exceed several thousand square feet in total sign area. Most communities do not even come close to allowing signs such as these. Unless your community allows signs of this magnitude, it is highly unlikely that your community will resemble anything like Las Vegas.

The key to addressing aesthetic concerns regarding EMCs is to ensure that the message brightness, duration, and transition method are properly regulated and enforced in conformity to community aesthetic values. EMCs in and of themselves are not aesthetically displeasing.

The Law in Canada

(The following is an excerpt from an article by Barnet H. Kussner**,** Signs of the Times: Recent Developments in Municipal Regulation of Billboards and other Signage[1])

For better or for worse, signs are a reality of modern urban living. Whether it is billboard signs beside a highway, election signs advertising candidates for public office, corporate logos atop a building, real estate signs advertising a property for sale or lease, mobile signs near a busy intersection, or sandwich boards along a sidewalk, signs are a seemingly ubiquitous element in the Canadian urban landscape.

It is precisely for this reason that many municipalities across Canada seek to regulate and control signage within their communities. By-laws which limit or prohibit specific categories or types of signs, and which require a permit for compliant signs, are the tools most commonly used by municipalities for that purpose. At the same time, however, the public interest in regulating signage often comes into conflict with the private interests of businesses and others who rely upon signs as a means of conveying their messages, commercial or otherwise, to their intended audience. Moreover, with the advent of the Canadian Charter of Rights and Freedoms (the "Charter") in 1982, to a considerable extent those private interests have been elevated to the status of constitutional rights which must be respected by municipalities seeking to control the proliferation of signs within their communities.

[1] We appreciate Barnet H. Kussner's permission to use this article (Signs of the Times: Recent Developments in Municipal Regulation of Billboards and other Signage) in whole or in part. We acknowledge that it is being re-printed with the permission of the author.

Regulation Suggestions for EMCs

Definitions

When it comes to drafting and enforcing signs bylaws, it is important for the language and definitions to have clear, reasonable, workable and easily understandable meanings. This is especially true when it comes to definitions in the part of the sign bylaw that covers EMCs. This language can often be technologically incorrect, difficult to implement, and unworkable in practice, resulting in sign bylaws that don't benefit regulators, sign users or the community.

Terms that need consistent clarification in regard to EMC regulatory language can be as basic as the definition of a changeable message sign. There are two kinds of such signs, manually-changed and electronically-changed. Most manually-changed signs involve a background surface with horizontal channels, into which plastic letters and numbers are inserted into the channels on the sign face. The message must be changed by having an employee or technician remove the existing plastic letters and replacing them with the new message.

On the other hand, for the most part EMCs use light emitting display technologies such as LEDs. These kinds of changeable message signs are operated via computer at a remote location and can change messages as fast as they can be programmed. For the purposes of this document, we are focusing on the definitional issues that arise when it comes to EMCs.

EMC regulatory definitions should cover certain technical capabilities of signs, such as:

ANIMATION — the usage of multiple frames running at a fast enough speed that the human eye perceives the content to be in continuous movement.

DISSOLVE — a mode of message transition on an EMC accomplished by varying the light intensity or pattern, where the first message gradually appears to dissipate and lose legibility simultaneously with the gradual appearance and legibility of the second message.

FADE — a mode of message transition on an EMC accomplished by varying the light intensity, where the first message gradually reduces intensity to the point of not being legible and the subsequent message gradually increases intensity to the point of legibility.

FLASHING — an intermittent or flashing light source where the identical EMC message is constantly repeated at extremely fast intervals.

FRAME — a complete, static display screen on an EMC.

FRAME EFFECT — a visual effect on an EMC applied to a single frame to attract the attention of viewers.

SCROLL — a mode of message transition on an EMC where the message appears to move vertically across the display surface.

STATIC MESSAGE — messages that contain static messages only, and do not have movement, or the appearance or optical illusion of movement during the static display period, of any part of the sign structure, design, or pictorial segment of the sign, including the movement or appearance of movement.

TRANSITION — a visual effect used on an EMC to change from one message to another.

TRAVEL — a mode of message transition on an EMC where the message appears to move horizontally across the display surface.

VIDEO — the use of live action footage shot with a video camera or similar device which is sized to fit and be displayed by an electronic message center or similar device.

Movement Allowances and/or Hold Time Language Options

The following are language options for varying usage allowances. It is ultimately the decision of the regulatory entity to determine what is appropriate for their community.

Option Allowing Movement and Animation in Commercial Areas

a. In HEAVY COMMERCIAL AND INDUSTRIAL ZONES OR USES such signs may display animation so long as flashing is prohibited.

b. In LIGHT COMMERCIAL AND MIXED USE ZONES OR USES such signs shall display static images for a period of at least one second (suggested) before transitioning to another static image. The use of frame effects is permitted so long as flashing and animation are prohibited.

c. In RESIDENTIAL AND PROTECTED ZONES OR USES such signs shall display static images for a period between three and ten seconds (suggested) before instantaneously transitioning to another static image. Animation, flashing and frame effects are prohibited.

Option Allowing Limited Movement in Commercial Areas

a. In COMMERCIAL AND INDUSTRIAL ZONES OR USES such signs shall display static images for a period of at least one second (suggested) before transitioning to another static image. The use of frame effects is permitted so long as flashing and animation are prohibited.

b. In RESIDENTIAL AND PROTECTED ZONES OR USES such signs shall display static images for a period between three and ten seconds (suggested) before instantaneously transitioning to another static image. Animation, flashing and frame effects are prohibited.

Option Limiting Content to Static Images in All Areas

a. In all zoning districts such signs shall display static images for a period between three and ten seconds (suggested) before instantaneously transitioning to another static image. Animation, flashing and frame effects are prohibited.

Brightness Language Should be Applied to All Areas

Brightness is one aspect of EMC control that should be applied to all areas and digital sign types in the same fashion. Whether it be commercial or residential, EMC or digital billboard, the same brightness regulation standard should be used for all.

Brightness Language

a. All electronic message centers shall come equipped with automatic dimming technology which automatically adjusts the sign's brightness in direct correlation with ambient light conditions.

b. No electronic message center shall exceed a brightness level of 0.3 foot candles (substitute 3 Lux if a municipality would like the metric version) above ambient light as measured using a foot candle (Lux) meter at a preset distance depending on sign area, determined using the following formula: The square root of the product of the sign area and one-hundred. Example using a 3 square metre sign: Measurement Distance = $\sqrt{}$(3 Sq. M. x 100) = 17.3 metres measuring distance.

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EMCs vs Digital Billboard Differentiation

When differentiating between first party EMCs and third party digital billboards, a municipality possesses options depending on their current sign bylaw language and/or their willingness to make extensive changes to their existing sign bylaw.

Assuming a regulatory entity's sign bylaw already has some differentiation between first and third party signage, differentiation between the two media can be simple. A regulatory entity would simply add one set of language for first party and one set of differing language for third party.

Sometimes this differentiation between first and third party is achieved by defining such signs as:

ON-PREMISE (1st Party) SIGN – a sign advertising the goods and services located at the premises on which the sign is placed.

OFF-PREMISE (3rd Party) SIGN – a sign advertising the goods and services located at a premises other than where the sign is placed.

Digital could therefore be defined as follows:

DIGITAL BILLBOARD — an off-premise sign capable of displaying multiple static images controlled by electronic communications.
ELECTRONIC MESSAGE CENTER — an on-premise sign capable of displaying words, symbols, figures or images that can be electronically or mechanically changed by remote or automatic means.

If a regulatory entity, however, does not currently differentiate between first party and third party or on-premise and off-premise, and does not want to consider overhauling their entire bylaw with differentiations, that entity may need to consider more creative ways to differentiate.

Arguably the best way to do this is by separating digital sign regulations by size. Larger digital signs would be regulated as third party digital billboards. Smaller digital signs would be regulated as first party EMCs.

Typically, the size threshold should regulate signs 20 square metres and under as first party EMCs and signs over 20 square metres as third party digital billboards.

It is also important for a regulatory entity to take into consideration large venues and entertainment areas in their regulations. For instance, if a regulatory entity would like to create an entertainment overlay for large-scale digital signs with movement, they may want to draft their language differently, to accommodate.

What NOT to do in Regulations

Multiple Definitions for the Same Sign

There are two types of first party changeable copy signs: Manual changeable copy signs and EMCs. Sometimes regulators mistake usage of EMCs for a type of sign. For instance, someone may draft a bylaw that defines and separately regulates the followings: Electronic Reader board Sign, Electronic Image Sign, Video Sign, Dynamic Message Sign, Scrolling Image Sign, etc. They may try to define such signs as being separate and having separate characteristics. For instance, they may define a video sign as displaying video, an electronic reader board sign as displaying only alphanumeric text and an electronic image sign as displaying images but not text. They would then proceed to prohibit some sign types and permit others.

The fact of the matter is all of the above definitions are the exact same sign. Very likely a reader board sign, as they define it would be able to display images. Similarly, a video sign, as defined, would be able display static images as well as video. Defining usage as a sign type and then permitting some sign types while prohibiting others leads to massive confusion, and the opportunity for people to find loop holes in a bylaw. It is best when regulating and defining, especially, to follow the "KISS" method, i.e. "Keep It Super Simple."

Colour and/or Text Limitations

Some jurisdictions have established restrictions on the types of content displayed on EMCs. Among the restrictions are prohibitions on high-quality images. Many of these limitations are based on a belief that "photo-quality" images lead to a more likely potential for sign owners to abuse the law and display usage that is not permitted (such as video).

Alphanumeric controls are designed to limit displays to the 62 Latin letters and Arabic numbers. Photographic images, graphics, and other characters are prohibited. While alphanumeric text allows messages to be expressed, the limited displays are not necessarily as effective as images can be. As noted in the American Planning Association's *Street Graphics and the Law*, images are encouraged as they are more

easily comprehended than text. Additionally, images allow businesses to express the products offered at their location using registered trademarks and logos, which are much more readily identified than words expressing the same message.

Any EMC should be allowed to display text information, graphics, or images identical to a permanent display on a non-EMC sign. EMC-specific regulations should avoid restrictions on the information displayed and be limited to appropriate controls on sign brightness, size, and message change.

Some jurisdictions have established restrictions limiting EMCs the number of colours displayed or a prohibition on full-colour images. As with text limitations many of these limitations are based on a belief that multiple colours or "photo-quality" images lead to a more likely potential for sign owners to abuse the law and display usage that is not permitted (such as video). Additionally, many jurisdictions simply see that another, neighboring community is requiring such a limitation, so they simply copy those regulations without considering the repercussions of such requirements.

Colour restrictions can take the form of limiting the total number of colours displayed ("one colour only" or "no more than 3 colours") or specifying the colours allowed ("amber only" or "no red lights"). As a practical issue, most EMCs are comprised of red, green and blue pixels capable of displaying full colour images. Even if the display appears to be a single colour ("white"), when viewed at a close distance the EMC can be seen to generating multiple colours of light that blend together as the viewing distance increases.

Restrictions on the number of colours are problematic to enforce as questions of colour shading and the "black" appearance of unlit LEDs complicate the ability to precisely determine the number of colours being displayed.

Additionally, many EMCs are designed to display information in a format similar to conventional signs. A filling station commonly displays the prices of gasoline, diesel fuel, ethanol and kerosene using different coloured numerals. If a manual changeable copy panel can display a message using multiple colours, an EMC should be afforded the ability to display the identical message.

Any EMC should be allowed to display text information, graphics, or images identical to a permanent display on a non-EMC sign. EMC-specific regulations should avoid restrictions on the information displayed and be limited to appropriate controls on sign brightness, size, and message change.

Spacing Limitations

Spacing from Other EMCs

Unlike third party digital billboards that can theoretically be located anywhere, first party EMCs are limited to the premises on which they advertise. Regulatory entities that try to impose regulations placing a distance between one EMC and another ultimately place one business at an advantage over another. This is because if a business chooses to install an EMC and a regulatory entity places a spacing requirement between EMCs, then the presence of that business' EMC prevents their neighbors from installing an EMC. Furthermore, such regulations create a "race to the permitting office" and potential animosity between neighboring businesses.

Spacing regulations often arise because regulators are afraid of EMCs popping up at every business. The fact of the matter is that EMCs are expensive enough that not every business can afford or justify the installation. Furthermore, EMCs have been prevalent throughout Canada for years, and have rarely been regulated. The fact that such signs are currently not located on every street corner when they have been allowed without regulation in many jurisdictions demonstrates that there will not be a mass proliferation. Therefore, spacing regulations are not needed and should not be used for first party EMCs.

Spacing from Intersections

Many jurisdictions in Canada are suggesting the implementation of spacing requirements between digital signs and intersections. This regulation seems to have spawned somewhere in Canada, as it is rarely seen anywhere but Canada. Some jurisdictions in justifying such regulations have pointed to a study titled "TAC Geometric Design Guide for Canadian Roads."

The study itself deals with design guidelines for roadways including the establishment of appropriate rights-of-way viewing cones along urban and rural intersections. The jurisdictions pointing to this study claim that the study demonstrates that blocking drivers' visions from intersections is hazardous. This is true. However, it is important to note that the study deals with the establishment of rights-of-way view cones for new roads. In other words, it deals with the design of the roadways themselves, and the roadways and subsequent development along those roadways have already been designed so as to prevent the blocking of drivers' vision. Therefore, any rules requiring an additional setback for EMCs are without rationale and prohibitive.

Furthermore, numerous studies have specifically looked at EMCs in proximity to intersections. A study published by the City of Toronto and authored by Alison Smiley

titled, “Traffic Safety Evaluation of Video Advertising Signs,” dedicated an entire section to studying the impact of EMCs in proximity to intersections and traffic signals. The study states, “No evidence was found that glances at video signs reduced the proportion of glances at traffic signs or signals... From the few occasions on which there were potential conflicts with pedestrians and cyclists, there is no evidence that drivers on the video approach were less likely to detect them.”

Finally, EMCs differ from traditional signs only in their ability to display multiple messages in an automatically changing manner. Such provisions are not applied to traditional signs. Therefore, they should not be applied to EMCs.

Message to the reader

Since 1955 the Sign Association of Canada has successfully promoted the welfare of the sign industry, improved the status of its members in the community and benefited the users of signs. However the traditional boundaries of the sign industry have expanded due to the rapidly changing level of technology and the evolution of the commercial marketplace.

The Sign Association of Canada has recognized these trends and has advanced to partner with related industries and government in hopes to create a common bond of understanding, education and trust.

The Sign Association of Canada would like to take this time to acknowledge all those who participated in the research and development of this publication. We thank you for your time and efforts.

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