

# white paper

## Do Outdoor LED EMCs Pose a Safety Concern for Motorists?

This White Paper addresses a common concern expressed by local municipalities, though generally misplaced, that on-premise outdoor LED electronic messages centers (EMCs) can be a visual distraction to motorists, and therefore can pose a traffic safety concern. While this concern may be understandable from an emotional or subjective standpoint, there is a growing body of scientific evidence that concludes that this concern has no basis in fact. This document is also meant to serve as an educational tool and an exhibit for attachment to permit requests seeking variances to local sign codes.

Much of the information in this document is drawn from these industry sources: the United States Sign Council (USSC), the International Sign Association (ISA), the Signage Sourcebook (SBA and the Signage Foundation for Communication Excellence), and the SBA web site devoted to signage. You may obtain additional resource information by contacting these organizations directly; their web sites are listed at the end of this document.

### Considerations for a model (EMC) sign code or when reviewing an existing Local Sign Code

- **Local codes are generally based upon a factual foundation.** When creating a model sign code or when interpreting an existing local Sign Code, it is important that the Code provisions be based on known fact, testing, research, or national sign standard or practice. Code language that is based on anecdotal evidence or subjective opinion is generally avoided, as it can be inaccurate and often untrue. It is *vitaly important* to note that there are no proven cases, nor are there any studies or research that find that On-Premise signs (with or without EMCs) cause traffic accidents. Therefore, a local code that purports to regulate and restrict the use of EMCs because EMCs can cause traffic accidents, or have a negative affect on traffic safety or Driver performance is restricting the use of EMCs based upon false assumption.

*We suggest that you reference the USSC Sign Accident Study.* You will need to know - do signs in general cause accidents? Study found they did not. Do signs with EMCs cause accidents? **Research found they did not.**

- **Driver distraction and information "overload" theory** - are EMCs a visual distraction? Many Municipalities attempt to make this claim. The answer, based on empirical research, is *absolutely not*. However, read and review the USSC Technical Bulletin on "Driver Information Load" (Pennsylvania Transportation Institute, Penn State). This University study reviewed all relevant testing data available on the interaction between Road Side Sign Information and Driver performance and concluded that there is no hypothetical limit to what a driver can visually handle, based on all research to date. In reality, Drivers simply ignore unimportant information when driving through complex visual environments.
- **Restrictions on commercial speech.** All local Sign Codes place restrictions on On-Premise signs, to some degree, and therefore place restrictions on Commercial Speech (the message on the sign). Commercial speech enjoys broad protection under the First

Amendment. "Time, place and manner" restrictions on commercial speech are permissible only if the restrictions:

1. Are justified without reference to the content of the speech (must be content neutral);
2. Serve a "substantial" government interest, and;
3. Directly advance that "substantial" government interest is asserted;
4. Are not more extensive than necessary to serve the interest (must leave open ample reasonable alternatives for effective communication of the information).
  - ❑ Time refers to when a message may be displayed.
  - ❑ Place refers to where the message may be displayed, and
  - ❑ Manner refers to how the message may be displayed.

As discussed in this White Paper, "traffic safety" is not a substantial governmental interest in the regulation of EMCs because it has no valid basis in fact (as well as "driver distraction" or "information overload").

The government cannot put time/place/manner limits on the message based upon what the message says or who is saying it (14th amendment) unless the message is unlawful or misleading or does not relate to the business on the property where the sign is located.

**Note:** A code that allows LED Time and Temperature units, but does not allow Message Centers, is unconstitutional as it censors speech, allows one type of speech while prohibiting another, and discriminates between forms of Commercial Speech without substantial governmental interest to justify the restrictions.

- **Physical location issues.** The size of the sign, road offsets, motorist cone of vision, and height parameters are all-important issues to be considered as part of the "safe sign design". Your local Sign Company Professional utilizes standard industry formulas to produce the right size sign and its corresponding content based upon individual traffic flow requirements.

For instance, there has been a recent trend in some Municipalities to limit a freestanding sign's height - only low "monument" sign structures are allowed in these communities. Problem: these signs must be tall enough to be easily seen by Motorists without obstruction. Current research on "monument" style signs shows that the Motorist's views of these types of signs are blocked 50%-70% of the time when they are installed along commercial roads. In addition, On-Premises signs with EMCs must be designed so that they display the right color contrast and be large enough (proper sign size or sign "area") so that they can give Motorists the necessary Viewer Reaction Time (VRT) and Viewer Reaction Distance (VRD) to make orderly and safe driving decisions. Your local Sign Company Professional can help to determine these factors. The end result will be a well-designed, functional sign.

### Visual benefits of outdoor LED EMCs:

- **Easy-to-read messages help improve traffic flow.** LED EMCs emit light and are easily read at all times of day and night and in all weather conditions. This allows motorists to make appropriate decisions without having to slow traffic flow or make sudden turns or to retrace a route because of a missed turn. EMC messages provide the best color contrast ratios when compared to other types of On Premises Signs and are easily read by individuals of all ages.

- **Safety and security community messaging.** Promoting the use of Amber Alerts on EMCs throughout a local community provides a powerful community service. Important community/association events and local traffic and weather conditions are tried and true messages with high value to the entire community. Local DOTs are increasing their reliance on VMS (variable message signs). Mobile trailer and permanently mounted VMS units provide up-to-the-minute messages about traffic conditions and weather information to help safely direct motorists.
- **LED EMCs quickly communicate** information to a mobile society. The mobility of American society has fostered substantial changes in customer behavior, and has dramatically increased impulse purchasing. LED EMCs allow the small business owner to target the mobile audience and to display vitally important information about their daily products and service specials and promotions - with a one-time fixed cost in hardware.

### On-premise signage can be a retailer's single most important advertising vehicle.

In the modern marketplace, the right place-based advertising will effectively and economically permit the local shopkeeper to successfully compete, even with the mass merchandiser or large retailer. LED EMCs bolster the image and identity of a local business and allow it to stand apart from competitors in any main-street marketplace.

### When regulating the installations of new LED EMCs keep in mind the following important issues:

- Censorship of Commercial Speech and restrictions on On-Premises Signs that are content-based are unconstitutional. Signs represent the most basic form of speech and are not just a part of the normal business requirement/activity. Electronic message centers enable dynamic content to be communicated to a targeted audience that meets today's ever-changing, fast-paced information world. Fast becoming the leading edge of today's outdoor sign technology, LED EMCs enable a business to communicate critical product and service promotions to our mobile society clearly and safely.
- DOTs in many states across the US use EMCs to provide traffic and regulatory information to Motorists. State DOTs would universally demand the prohibition of EMCs if they were somehow unsafe. Just the opposite is true: many of our states DOTs use LED EMCs as the central part of their arterial, trailer mounted, and permanent over-the-highway IT (intelligent transportation) programs.
- Is there existing "grandfathered" EMC signage throughout your community? In many jurisdictions, if other existing EMCs or time and temperature signs have been permitted by Code in the past, new installations cannot be subject to regulation/prohibition after a local Code is changed.

***City planners are trying to reduce the amount of "sign clutter" and improve the overall aesthetics of the local business district.*** In this endeavor, the restrictions on LED EMCs are also tightened. The end result being just the opposite of what the city planners intend. LED EMCs act as a consolidating type of sign advertising. They can substitute for temporary signs and banners that many businesses are forced to use in order to communicate their temporary or special messages. Therefore, they offer a significant advantage to a district trying to improve its

overall aesthetic qualities (the temporary signs and banners will not be needed). Innovative cities must seek to optimize the return from local retail space to prevent sprawl and deterioration. A professional signage program that incorporates an LED EMC dramatically improves a business's flexibility to communicate in a way that generates a strong consumer response and improves the stability of that same business.

**From a common sense viewpoint**, consider Las Vegas. If LED EMCs do pose a traffic safety hazard, then we would see thousands of daily traffic accidents in Las Vegas related to signs. The fact is that Las Vegas and other complex commercial environments do not have higher traffic accident rates related to signs and EMCs, and this is because these Signs do not pose a traffic safety hazard. In fact, LED EMCs do just the opposite, by providing a professional, easily read messaging service that cannot be replaced by any other outdoor advertising medium.

## DOT - Traffic and Regulatory EMC Applications

*On-premise EMC business signage has a whole host of separate technical and legal issues that differentiate them from public use of LED display technology. The material below has been added to this document to draw a correlation between the perceived "safety concerns" of EMCs on a local on-premise environmental level, and the overall larger picture of the use of EMCs by DOTs.*

There is obviously a growing trend towards the use of electronic messaging to help improve traffic flow and communicate important information to motorists on highways. For example, instantly informing the public about Amber Alerts helps provide critical leads to emergency and police personnel.

### Additional reference materials about what traffic professionals say about LED EMCs

- The *Manual on Uniform Traffic Control Devices (MUTCD)* written by the FHWA controls minimum size, height, placement, lighting, letter type and size, color, and many other aspects of government signage. The manual is available on the internet at <http://mutcd.fhwa.dot.gov/>  
EMCs are often considered to be flashing signs and therefore distract drivers attention - this is another common misperception. The Federal Highway Administration's (FHWA) position was established in 1978. The Surface Transportation Assistance Act of 1978, Public Law 95-599 amended the highway beautification law to allow on-premise signs that may be changed at reasonable interval by electronic process or by remote control. The issue of frequency of EMC message change has been left up to the states.
- The FHWA *Manual on Uniform Traffic Control Devices* provides additional guidance in determining the interval length for the safe display of a message not to be considered a flashing sign. "The entire message cycle should be readable at least twice by drivers traveling at the posted speed, the off-peak 85th-percentile speed of the operating speed". Local municipalities and counties have generally established that a reasonable interval for changes in electronic messages is anywhere from 1-5 seconds.

### Interesting resource notes

- In 1978, the Surface Transportation Assistance Act amended the highway beautification law to allow on-premise EMCs along the Interstate and Federal Aid Primary road systems, subject to individual state law.

- In 1980, following the 1978 amendment, the FHWA commissioned researchers Ross Netherton and Jerry Wachtel to undertake a safety study concerning the use of EMCs. They concluded that no credible statistical evidence existed to support the assumption that EMCs negatively impacted road safety.
- 1976 - Analysis and Modeling Relationships Between Accidents and the Geometric and Traffic Characteristics of the Interstate System", Cirillo, Dietz and Beatty; US Government Printing Office, FHWA, Washington, DC, August 1969 first release. This study by the FHWA found that commercial signs did not adversely affect safety, but also that high-rise signs located at high traffic volume intersections enhanced traffic safety, provided they were noticeable or conspicuous and legible. The best way to make this happen is via use of an EMC.
- 1981 - *Metromedia Inc. v. City of San Diego*. The US Supreme Court and the litigants stipulated that there was no positive correlation between private signs and traffic accidents.
- 1996 - *Flying J. Travel Plaza v. Commonwealth, KY*. The court said the state had failed to demonstrate that a legitimate government interest was advanced by the prohibition of EMCs, and said no evidence supported the notion that so limiting the content on the display had "anything to do with highway safety or aesthetics."
- 2000 - *North Olmsted Chamber of Commerce v. City of North Olmsted, OH*. Judge Nugent's opinion in this case provides strong support in favor of the on-premise sign industry's claims that many local sign ordinances are unlawfully discriminatory against commercial signs.
- 2002 - *King Enterprises, Inc. v. Thomas Township, MI*. The Court determined that the township failed to establish any justification, under the Central Hudson four-pronged test, for allowing a "content based triggering event," and the provision was found unconstitutional.

### Additional reference sources for on-premise signage

- **ISA (International Sign Association)** Call their hotline 866-WHY-SIGN (949-7445), or visit their web site at [www.signs.org](http://www.signs.org). ISA members can contact them at 703.836.4012 to obtain an SBA booklet on the importance of on-premise signage entitled "Signs: Showcasing Your Business on the Street". *ISA Signline* newsletters also offer helpful guidelines for understanding the legal and business aspects of on-premise signage.
- **USSC (United States Sign Council)** Call 215-785-1922 or visit their web site at [www.ussc.org](http://www.ussc.org). The USSC has more than a dozen well-researched publications on signs, including National Sign Standards for Legibility and Height, traffic safety studies, and zoning issues.
- **The US Small Business Administration (SBA)** has produced many excellent reference materials about the benefits of on-premise signage. Visit their site at <http://www.sba.gov/starting/signage> for more information.
- **Signlaw.com** is an informational web site on the American laws regarding signs, billboards, outdoor advertising, public forum and related topics.