Index File

ZT-163-15

York County Board of Supervisors

Proposal to amend Chapter 24.1, Zoning, of the York County Code by amending Sections 24.1-701, Sign classifications, 24.1-702, General sign regulations, and 24.1-704, Prohibited signs to establish definitions and standards for electronic message center signs and illumination levels.

Attachments:

- Staff Memorandum

- Proposed Resolution No. PC15-14

COUNTY OF YORK
MEMORANDUM

DATE: June 1, 2015 (PC Mtg. 6/10/15)

TO: York County Planning Commission

FROM: Earl W. Anderson, AICP, Senior Planner

SUBJECT: Zoning Ordinance Text Amendments – Sign Illuminance

BACKGROUND

The York County Zoning Ordinance allows electronic signs as a generally available option, subject to applicable maximum area and height standards, provided that any text or image remains static for at least 24 hours. Changing the text or image more frequently is considered to be a "flashing" sign, and flashing signs are prohibited by the terms of the Ordinance. A number of businesses have installed electronic signs capable of projecting text or images and have adhered to the 24-hour rule.

Since October, 2009, the sign provisions have included an exception allowing free-standing electronic changeable message signs for community, regional, and specialty shopping centers to display messages that can change as frequently as every eight (8) seconds. In April 2014, this provision was expanded to allow the more frequent message changes for signs at places of worship provided that any such signs located in residential zoning districts must incorporate automatic nighttime dimming technology and, between dusk and dawn, a black background field and amber or orange text or images.

In either case, a general provision in the ordinance indicates that the illumination intensity of the sign cannot be "offensive" or "adverse" to adjoining property. However, that provision does not provide an accurately measurable limit on illumination intensity. The attached ordinance amendments, if adopted, would add more definition to limits on light intensity emanating from electronic signs.

DISCUSSION

Electronic message center signs have become increasingly prevalent as technologies have improved message delivery. These signs can be illuminated through a variety of methods, such as:

- Incandescent lamps,
- Light emitting diodes (LEDs),
- Liquid-crystal display (LCD),
- Fiber optics,
- Light bulbs, and
- Plasma display screens.

Some of these displays have proven to be very bright, even in daylight, and even more so at night when the brightness has the potential to distract drivers as well as reducing the legibility of the sign. The Zoning Ordinance currently regulates illumination intensity in a general way through the following provision [Section 24.1-702.(m)]:

> *"The light from any illuminated sign shall be so shaded, shielded or directed that the light intensity or brightness shall not adversely affect surrounding premises nor adversely affect safe vision of operators of vehicles moving on public or private roads, highways, or parking areas. Light shall not shine or reflect in an offensive manner on or into residential structures or motels. No exposed reflective type bulbs or incandescent lamps shall be used on the exterior surface of any sign in such a manner that will cause offensive glare on adjacent property or create a traffic hazard."*

However, while sign owners and sign installation companies have been relatively cooperative when approached by the Zoning and Code Enforcement staff concerning brightness complaints, this provision does not provide clear guidance to either the sign installer or the County staff. Similar issues have been faced in other localities and a great deal of research, as well as ordinance examples, is now available to address illumination intensity. As a result, and in consideration of the concerns expressed about such signs in York County, staff has developed a proposal to amend the Zoning Ordinance to include more specific guidance.

There are two generally accepted measures of brightness: illuminance and luminance. Illuminance, the preferred method, is a measure of the amount of light intercepting an object at a given distance from a light source and is measured in footcandles or its metric equivalent, lux. Illuminance can be measured with a footcandle meter (also known as a luxmeter), which is relatively inexpensive ($100 to $1,000) and commonly available. The footcandle meter should be accurate to two decimal points for accurate measurements. The second method, luminance, is an absolute measure of the amount of brightness that is being emitted from a light source and is usually measured in candelas per square meter, also known as "nits." Luminance can be measured by use of a "nit gun," which is more expensive (approximately $3,000) and difficult to calibrate. The preferred method of measurement is illuminance using a footcandle meter because a measure of luminance fails to account for ambient light conditions.

Those Hampton Roads localities that regulate electronic message center signs do so in a variety of ways, as outlined below:

- The City of Newport News permits freestanding electronic display signs and measure brightness using luminance, which limits the allowable nits per sign to a maximum of 10,000 nits from sunrise to sunset and 700 nits between sunset and sunrise. Signs must be equipped to further dim brightness when ambient conditions do not require the maximum allowed level of brightness.
- The City of Virginia Beach regulates the electronic displays of motor vehicle fuel prices and measures brightness using candelas, at a maximum illumination of 5,000 candelas per square meter from sunrise to sunset and 500 candelas per

square meter between sunset and sunrise. The City also allows major entertainment venue signs but does not assign specific illumination levels.

- The City of Norfolk controls sign illumination using footcandles and does not allow any artificial light source to exceed 100 footcandles at the sign face.

Electronic message center signs are designed to produce sufficient brightness to ensure clear legibility during the daylight hours, but these levels are inappropriate for nighttime viewing. Various methods can be used to dim electronic signs for appropriate nighttime viewing. The proposed regulations recommend using a sensor to automatically dim the sign according to the ambient light conditions. Other methods include manual dimming and scheduled dimming, but those do not take into account outside ambient light conditions (i.e., rainy days, etc.).

To develop recommended brightness criteria for electronic displays, staff utilized a report from the International Sign Association, titled *Recommended Night-time Brightness Levels for On-Premise Electronic Message Centers*, prepared from a study by Dr. Ian Lewin, a leading lighting expert. The report recommended the development of brightness criteria based on the Illuminating Engineering Society's (IES) well-established standards pertaining to light trespass (IES Publication TM-11-00). The theory of light trespass is based on the concept of determining the amount of light that can spill over (or "trespass") into an adjacent area without being offensive.

The report recommends a conservative maximum lighting threshold in areas of both low and high ambient light to ensure that signs are sufficiently visible without being overly bright. Specifically, the recommendation is that electronic message center signs not exceed 0.3 footcandles over ambient lighting conditions when measured from certain distances based on the size of the sign.

RECOMMENDATION

The proposed amendments have been drafted with the objective of creating a fair and consistent regulatory policy for dealing with electronic sign illumination intensity. Staff recommends that the Commission forward the Zoning Ordinance text amendments set forth in proposed Resolution No. PC15-14 to the Board of Supervisors with a recommendation of adoption.

EWA

Attachment:

- Proposed Resolution No. PC15-14

PLANNING COMMISSION
COUNTY OF YORK
YORKTOWN, VIRGINIA

Resolution

At a regular meeting of the York County Planning Commission held in the Board Room, York Hall, Yorktown, Virginia, on the ____ day of _____, 2015:

Present	Vote
Melissa S. Magowan, Chair	
Timothy D. McCulloch, Vice Chair	
Montgoussaint E. Jons	
Glenn A. Brazelton	
Todd H. Mathes	
Richard M. Myer, Jr.	
Mark B. Suiter	

On motion of _____, which carried ___, the following resolution was adopted:

A RESOLUTION TO RECOMMEND APPROVAL OF AN APPLICATION TO AMEND THE YORK COUNTY ZONING ORDINANCE, CHAPTER 24.1, YORK COUNTY CODE, TO INCORPORATE PROVISIONS REGULATING ELECTRONIC MESSAGE CENTER SIGNAGE AND ILLUMINATION LEVELS

WHEREAS, the York County Board of Supervisors has sponsored Application ZT-163-15 to amend the Zoning Ordinance to establish definitions and standards for electronic message center signs and illumination levels; and

WHEREAS, said application has been forwarded to the York County Planning Commission in accordance with applicable procedure; and

WHEREAS, the Planning Commission has conducted a duly advertised public hearing on this application; and

WHEREAS, the Commission has carefully considered the public comments with respect to the proposed amendments; and

WHEREAS, the Planning Commission has determined that such amendments are consistent with good zoning practice;

NOW, THEREFORE, BE IT RESOLVED by the York County Planning Commission this the ____ day of _____, 2015 that it does hereby sponsor an application

to amend Chapter 24.1, Zoning, of the York County Code to read and provide as follows:

Sec. 24.1-701. Sign classifications.

Signs, as defined in article I, shall be classified according to one or more of the following definitions:

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Electronic message center (EMC). A sign that utilizes computer-generated messages or some other electronic means of displaying and changing copy. These signs include displays using incandescent lamps, light emitting diodes (LEDs), liquid-crystal display (LCD) fiber optics, light bulbs, plasma display screens or other illumination devices, or a series of vertical or horizontal slats or cylinders that are capable of being rotated at intervals that are used to change the messages, intensity of light or colors displayed by such sign. The term shall not include signs on which lights or other illumination devices display only the temperature or time of day in alternating cycles or only motor vehicle fuel prices displayed continuously.

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Internal illumination. Illumination by a light source which is concealed or contained within the sign itself and which shines through a translucent surface, except as defined under "electronic message center".

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Sec. 24.1-702. General sign regulations

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(m) The light from any illuminated sign shall be so shaded, shielded or directed that the light intensity or brightness shall not adversely affect surrounding premises nor adversely affect safe vision of operators of vehicles moving on public or private roads, highways, or parking areas. Light shall not shine or reflect in an offensive manner on or into residential structures or motels. No exposed reflective type bulbs or incandescent lamps shall be used on the exterior surface of any sign in such a manner that will cause offensive glare on adjacent property or create a traffic hazard.

In the case of electronic message center signs, the following additional standards shall apply:

(1) Illuminance intensity of electronic message center signs shall be measured with an illuminance meter set to measure footcandles and accurate to at least two decimals. The maximum allowable illumination intensity for such signs

shall be determined relative to ambient lighting conditions by measuring the difference between an intensity reading taken with the sign illumination turned off and one taken with the sign displaying a white image for a full color-capable electronic message, or a solid message for a single-color electronic message. The difference between the two readings shall not exceed 0.3 footcandles. All measurements shall be taken perpendicular to the face of the sign at the distance determined by the total square footage of the electronic message center sign as set forth in the following table:

SIGN AREA VERSUS MEASUREMENT DISTANCE	
Area of Sign (sq. ft.)	Measurement Distance (ft.)
10	32
15	39
20	45
24	49
32	57
40	64
50	71
64	80
150	122

For signs with an area other than those specifically listed in the table, the measurement distance shall be calculated using the following formula:

$$\text{Measurement Distance} = \sqrt{\text{Area of Sign sqft x 100}}$$

(2) Each permitted electronic message center sign shall be equipped with a sensor or other device that automatically determines the ambient illumination and which is programmed to automatically dim the illumination intensity according to ambient light conditions so as to ensure compliance with the 0.3 footcandle standard.

Prior to the County's final inspection and approval of an electronic message center sign, the applicant shall provide written certification from the sign manufacturer/installer that the sensor is working correctly to keep the sign's illumination intensity within the prescribed brightness limitations set by this ordinance.

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Sec. 24.1-710. Prohibited signs.

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(b) Signs with lights which flash, move, rotate, blink, flicker, or vary in either intensity or color, or which change the message or image more frequently than once every 24 hours.

The above provisions notwithstanding, electronic message center signs (changeable message or image signs) which change more frequently than once every 24 hours shall be permitted on the freestanding signage otherwise allowed for places of worship and for community, regional, or specialty shopping centers, as defined in this chapter, provided that:

(1) each message or image shall remain fixed and unchanged for a minimum period of eight (8) seconds;

(2) there is no appearance of movement, scrolling, dissolving or fading in which images or messages "move" or in which part of one message or image appears simultaneously with any part of a second or subsequent one;

(3) the maximum illumination intensity shall not exceed the limits prescribed in Section 24.1-702(m) and any illumination intensity, contrast or coloration of the message text or image shall remain constant for each display period;

(4) when such sign is installed at a place of worship located in a Residential zoning district it shall be designed and operated ~~equipped with technology that automatically dims the electronic message illumination intensity commensurate with ambient light conditions (i.e., illumination intensity lower in low-light and nighttime conditions than in daylight). In addition,~~ so that between dusk and dawn the background field for any variable text message on the sign shall be black and the lights constituting the message text or any image shall be amber or orange ~~and set at the lowest illumination intensity that provides contrast and legibility on the black background~~; and

(5) provided further, that this special signage opportunity shall not be permitted for any place of worship or shopping center located in a TCM-Tourist Corridor Management Overlay district.

~~Message or image changes on any other changeable message/image signs shall occur no more frequently than once every 24 hours.~~

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