

Memo

To: Smithfield Township Board of Supervisors
From: Jon S. Tresslar, P.E., T&M Associates
Date: November 13, 2024
Re: Sign Ordinance, Section 7. Sign Illumination Standards Comments

As requested, we have reviewed Section 7, Sign Illumination Standards of the draft Sign Ordinance. Below are suggestions which are also reflected in the attached “red-lined” Section 7 document.

1. Add the language in **red** to Section 1.b.

Light sources to illuminate signs shall neither be visible from any street right-of-way **or adjacent property**, nor cause glare hazardous or distracting to pedestrians, vehicle drivers, or adjacent properties.

2. The Township should consider a range of 250 nits to 500 nits for night-time illumination levels. Our research has found that a minimum of 500 nits is recommended. If a range is considered, additional language should be added requiring a reduction of illumination levels to a minimum of 250 nits should the sign become a nuisance to pedestrians, vehicles, or adjacent properties.

3. Add the language in **red** to Section 2.a.vii.

The external illumination of a sign within 400 feet of a residential zoning district lot **or residential dwelling** lot shall not be permitted.

4. It appears referenced §6.6 in Section 3 should be revised to §6.7.
5. It appears referenced §6.7 in Section 4 should be revised to §6.8.
6. In the Summary Table in Section 7.7, the Motion Limitation and Size Limitation should be “N/A” for the Residential District.
7. DarkSky International suggests the following:

- Signs greater than 20 square feet shall comply with the illumination times required in Section 1.d. Signs less than 20 square feet may remain lit 24 hours per day. *The Township may consider this language, however we do not believe it is required.*
- If an electronic malfunction occurs, the sign shall default to night-time mode or remain unlit. *The Township should consider adding this language under Section 1 and revise Sections 2.b.vi, 3.a.iii, and 4.a.iv to include similar language.*
- Illumination of static signs be from the top of the sign and directed downward. *The Township should consider adding this language to Section 2.a.*
- Excluding trademark logos, electronic messages shall be positive-contrast (i.e., light-colored fonts and features on a dark background) and shall contain no more than 35% white area within the displayed image. *Light on dark message are more legible and are legible at a greater distance. The Township may consider this language, however we do not believe it is required.*



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Alerts or alerts concerning terrorist attacks or natural disasters. Emergency information messages shall remain in the advertising rotation according to the protocols of the agency that issues the information.

8. Digital display signs are subject to the following regulations in addition to all other requirements established in §7 – Sign Illumination Standards.
 - a. Sign Type: Digital displays are permitted in the form of freestanding, monument, and wall signs, both on-premises and off-premises, in accordance with the regulations established in §8-9.
 - b. Height: A digital display shall have the same height limits as for other permitted signs of the same type and location.
 - c. Area:
 - i. When used as an on-premises sign, digital displays shall not exceed more than 30% of the total sign area permitted on the site.
 - ii. When used as an off-premises sign, digital displays may be used for the full permitted sign area.
 - d. Maximum Number per Property: Where permitted, one (1) digital display sign is permitted per property.

DarkSky International suggested language to add to Section 7.1.

Excluding trademark logos, electronic messages shall be positive-contrast (i.e., light-colored fonts and features on a dark background) and shall contain no more than 35% white area within the displayed image. *[Positive-contrast (light-on-dark) messages are more legible, and legible at greater distances (as much as one-third greater), than negative contrast (dark-on-light) messages. In addition, the increased light emitted by negative-contrast messages may overwhelm the darker features.]*

Section 7. Sign Illumination Standards

1. Signs may be illuminated, unless otherwise specified herein, consistent with the following standards:
 - a. Location: The summary table below (§7.7) provides detailed information about what types of illumination are permitted in each zoning district.
 - b. Light sources to illuminate signs shall neither be visible from any street right-of-way, nor cause glare hazardous or distracting to pedestrians, vehicle drivers, or adjacent properties.
 - c. No more than 0.2 foot-candle of light shall be detectable at the boundary of any abutting property.
 - d. Hours of Operation: On-premises signs on non-residential properties may be illuminated from 5 am until 11 pm, or ½ hour past the close of business of the facility being identified or advertised, whichever is later.

or adjacent properties

DarkSky International suggests signs greater than 20 square feet comply with this requirement.

e. Brightness: Message center signs and digital displays are subject to the following brightness limits:

- i. During daylight hours between sunrise and sunset, luminance shall be no greater than five thousand (5,000) nits.
- ii. At all other times, luminance shall be no greater than two hundred fifty (250) nits. low? Suggest 500 nits, or range 250 to 500 nits to allow for adjustment
- iii. Each sign must have a light sensing device that will automatically adjust the brightness of the display as the natural ambient light conditions change to comply with the limits set here within.



Add language suggested by DarkSky International: If an electronic malfunction occurs, the sign shall default to night-time mode or remain unlit.

Message Duration: The length of time each message may be displayed on a message center sign, digital display, or Tri-Vision Board sign is based upon the visibility and speed limit unique to individual signs and adjacent road conditions. The following method should be used to calculate message duration for message center signs, digital displays, or Tri-Vision Board signs.

- i. Determine the greatest distance from which the sign becomes visible on the road the sign is primarily intended to serve. If a sign is intended to be seen by more than one roadway, the road with the lower posted speed limit shall be used for determining message duration.
- ii. Multiply the road's posted speed limit (MPH) by 5,280, and then divide by 3,600 to obtain the speed limit in feet/second.
- iii. Divide the visibility distance by the speed limit (feet/second).
- iv. Add an additional ten (10) percent of this number to the total.
- v. The resulting amount of time is the minimum permitted message duration, except where this value is less than eight (8) seconds in which the minimum message duration shall be no less than eight (8) seconds.

2. Types of Illumination: Where permitted, illumination may be:

a. External: Externally illuminated signs, where permitted, are subject to the following regulations:

- i. The source of the light must be concealed by translucent covers.
- ii. External illumination shall be by a steady, stationary light source, shielded and directed solely at the sign. The light source must be static in color.
- iii. All sign lighting shall be designed, aimed and fitted to limit the light pattern to the sign and not beyond and so as not to project their output into the windows of neighboring residences, adjacent uses, past the face of the sign, skyward or onto public roadways creating a visibility hazard to drivers. Signboards placed adjacent to residential areas must not spill light to those areas (0.2 footcandles at adjacent property lines) and must be dimmable.
- iv. The use of red, green or amber flashing lights on any sign within 200 feet of a street intersection shall be prohibited.
- v. Smithfield Township reserves the right to require post-installation re-aiming,

DarkSky International suggests illumination for static signs be from top of sign and directed down.

- shielding, reduction of light intensity, or any other remediation to mitigate off-site consequences.
- vi. The maximum initial illuminance on the face of an externally illuminated sign shall not exceed 10 vertical footcandles anywhere on the face of the billboard.
- vii. The external illumination of a sign within 400 feet of a residential zoning district ~~lot~~ shall not be permitted.
- or residential use
- viii. Rotating, pulsing or oscillating lighting sources, lasers, beacons or strobe lighting shall not be permitted.
- b. Internal: Internally illuminated signs, where permitted, are subject to the following regulations:
 - i. Internal illumination, including neon lighting, must be static in intensity and color.
 - ii. Message center signs are permitted in accordance with the regulations contained in §6 and §7.
 - iii. Digital displays are permitted in accordance with the regulations contained in §6 and §7.
 - iv. All internally illuminated digital/LED signs visible from roadways may not display animated images, shall contain static messages only, and shall not have movement nor flashing on any part of the sign or structure, nor shall the sign have varying light intensity during the display of any single message.
 - v. There shall be no appearance of a visual dissolve or fading, in which any part of one electronic message/display appears simultaneously with any part of a second message.
 - vi. Digital or LED or other internally illuminated signs and billboards should be designed so that should the digital billboard/sign malfunction, the message will automatically freeze. or the billboard/sign shall remain unlit.
 - vii. There shall be no appearance of flashing or sudden bursts of light, and no appearance of animation of the message/display. No fade, twinkle, scroll, dissolve or moving pictures or animation shall be permitted.
 - viii. Any illumination intensity or contrast of light level shall remain constant throughout the sign face.
 - ix. The intensity of the internal light source for an internally illuminated sign and billboards shall be such that it shall not create off-site glare, light trespass or a visibility hazard to drivers. Control of intensity can be through reduction in wattage or shielding of the light bulbs. There shall be no more than 0.2 footcandle spillover onto adjacent properties.
- 3. Message center signs are subject to the following illumination requirements in addition to those standards established in §6.6. 6.7

- a. Message Display:
 - i. No message center sign may contain text which flashes, pulsates, moves, or scrolls. Each complete message must fit on one screen.
 - ii. The content of a message center sign must transition by changing instantly (*e.g.*, no fade-out or fade-in).
 - iii. Default Design: The sign shall contain a default design which shall freeze the sign message in one position if a malfunction should occur. **or the sign shall remain unlit.**
4. Digital display signs are subject to the following regulations in addition to all other requirements established in **§6.7. 6.8**
 - a. Message Display:
 - i. Any Digital Display containing animation, streaming video, or text or images which flash, pulsate, move, or scroll is prohibited. Each complete message must fit on one screen.
 - ii. One message/display may be brighter than another, but each individual message/display must be static in intensity.
 - iii. The content of a digital display must transition by changing instantly, with no transition graphics (*e.g.*, no fade-out or fade-in).
 - iv. *Default Design:* The sign shall contain a default design which shall freeze the sign message in one position if a malfunction should occur. **or the sign shall remain unlit.**
5. Electrical Standards.
 - a. Permits for illuminated signs will not be issued without an approved township electrical inspection, the permit for which shall be filed at the same time as the sign permit application.
 - b. All work shall be completed in full compliance with Smithfield Township building requirements as set forth in the PA Uniform Construction Code.
 - c. The electrical supply to all exterior signs, whether to the sign itself or to lighting fixtures positioned to illuminate the sign, shall be provided by means of concealed electrical cables. Electrical supply to freestanding signs shall be provided by means of underground cables.
 - d. The owner of any illuminated sign shall arrange for a certification showing compliance with the brightness standards set forth herein by an independent contractor and provide the certification documentation to Smithfield Township as a condition precedent to the issuance of a sign permit.
6. Glare Control: Glare control shall be achieved primarily through the use of such means as cutoff fixtures, shields, and baffles, and appropriate application of fixture mounting height, wattage, aiming angle, and fixture placement. Vegetation screens shall not be employed to serve as the primary means for controlling glare.
7. Illumination Standards by District (table):

District	Illumination Type			Brightness Limitation for Digital Displays and Message Center Signs	Hours of Illumination	Motion Limitation	Size Limitation		
	Internal	Message Center Sign	External				Digital Display	Digital Display Signs as a Max % of Total Sign Area on Site	Message Center Signs as a Max % of Sign Area
Residential (R-1, R-2, R-C)	N	N	Y	N	N/A	Determined by visibility. See §71.f N/A	N/A	N/A 50%	
Resort (RE)	N	N	Y	N	N/A	5 am to 11 pm or 1/2 hour past close of business	N/A	N/A	
General Commercial & Industrial (ED, M1)	Y	Y	Y	Y	N/A	Daytime: 5,000 Nits Nighttime: 250 Nits	5 am to 11 pm or 1/2 hour past close of business	Determined by visibility. See §71.f	30% 50%
Off-Premises*	Y	Y	Y	Y	N/A	Daytime: 5,000 Nits Nighttime: 250 Nits	N/A	Determined by visibility. See §71.f	100% 100%
Temporary Signs*	N	N	N	N	N/A	N/A	N/A	N/A	N/A
Portable Signs*	N	N	N	N	N/A	N/A	N/A	N/A	N/A

*Off-premises, temporary, and portable signs are subject to the illumination regulations governing off-premises, temporary and portable signs, rather than the illumination standards governing the specific district where the sign is located