

January 18, 2022

BY EMAIL

Lyndsey Olson, City Attorney
Saint Paul, Minnesota
lyndsey.olson@ci.stpaul.mn.us

Re: Rectangular Rapid Flashing Beacons

Dear Lyndsey Olson,

I have been assaulted by Rectangular Rapid Flashing Beacons so many times that I now suffer a panic attack whenever I encounter them. Heidi O’Leary suffers epileptic seizures from RRFBs. John Moody develops a migraine when subjected to the flashing LED light beams from RRFBs. The purpose of this letter is to ensure that these toxic, hazardous, discriminatory, and unapproved devices are removed from the public realm.

The following people have already been contacted about this and are aware of the issue.

- Sachin Pavithran, Executive Director, US Access Board (pavithran@access-board.gov)
- Stephanie Pollack, Deputy Administrator, Federal Highway Administration (Stephanie.Pollack@dot.gov)
- Alexander Hoehn-Saric, Chairman, Consumer Products Safety Commission (info@cpsc.gov)
- Dr. Angel Hernandez, Division Chief of Neurology, Helen DeVos Children’s Hospital (angel.hernandez@helendevoschildrens.org)
- John Simmons, Chair, Carmanah Technologies (jsimmons@carmanah.com)
- Carolyn Maloney, Chair, House Oversight Committee (morgan.solomon@mail.house.gov)
- Norma Cantu, Chair, US Commission on Human Rights (ncantu@law.utexas.edu)
- Kay Fitzpatrick, Senior Researcher, Texas A&M Transportation Institute (K-fitzpatrick@tamu.tti.edu)
- John Bullough, Program Director, Mount Sinai Light and Health (john.bullough@mountsinai.org)
- Laura Thrall, CEO, Epilepsy Foundation (lthrall@efa.org)

The Federal Highway Administration has not approved RRFBs. Rather, RRFBs were given an “interim approval” in 2018.¹ As per the FHWA, “**State and local agencies must request and receive**

¹ https://mutcd.fhwa.dot.gov/resources/interim_approval/ia21/index.htm

permission to use this new Interim Approval, designated IA-21, from the Federal Highway Administration (FHWA) in accordance with the provisions of Section 1A.10 of the MUTCD before they can use the RRFB, even if prior approval had been given for Interim Approval 11 (IA-11), now terminated.” This interim approval means that the FHWA is still studying the safety of RRFBs and has not made a final determination as to whether they will be included in the MUTCD. The Soft Lights Foundation has already submitted public comments requesting that RRFBs not be approved because the devices are dangerous and discriminatory.²

The FHWA interim approval does not specify a safety limit for peak luminance, does not specify a rise and decay time, does not address the issue of quantity of devices, and does not address the issue of discrimination; nor has any of the research on these devices has addressed these issues.³ It is possible that the city of Saint Paul never applied for permission to use the RRFB, which would mean that the RRFBs in Saint Paul were installed without authority to do so. However, even if Saint Paul did receive permission from FHWA, the product itself is still dangerous and discriminatory and must be removed.

As an example of how dangerous LED radiation is, the operator’s manual for the Ryobi P705 Flashlight includes the following: *“WARNING: Do not direct the light beam at persons or animals and do not stare into the beam yourself (not even from a distance) Staring into the light beam may result in serious injury or vision loss.”* The warning also refers to children, who along with infants are an identified high-risk population vulnerable to LED-exposure harm. Babies often lack an adult’s automatic, self-protective aversion response to bright or intense light, and will stare directly at the source. The parenthetical “(not even from a distance)” indicates a high level of danger. The act of intentionally shining rapid pulses of intense light directly into the eyes of drivers meets the legal definition of assault.⁴

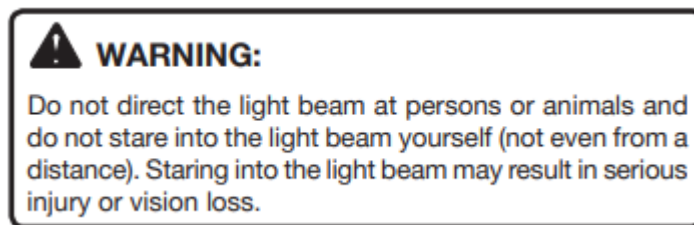


Figure 1 - Flashlight Warning Label

LED light beams can trigger epileptic seizures, whether the light beam is static (even supposedly static LEDs are probably flickering at some rate) or flashing. Businesses that wish to protect themselves from liability may place a sign at the entry way to their business to alert people with epilepsy of the danger. Considering that RRFBs trigger epileptic seizures, we should be seeing these signs near all RRFBs.

² <https://www.federalregister.gov/documents/2020/12/14/2020-26789/national-standards-for-traffic-control-devices-the-manual-on-uniform-traffic-control-devices-for>

³ <https://tti.tamu.edu/researcher/new-rapid-flashing-beacon-shows-great-promise-in-improving-pedestrian-safety/>

⁴ <https://www.law.cornell.edu/wex/assault>



Figure 2 - Epilepsy Warning Sign

The video for Figure 3 shows how incandescent hazard lights work. They give a slow, general, soft warning and let people know that the vehicle is in an unusual situation without detracting from the task of driving or walking, and without causing seizures, migraines, or panic attacks.

Non-LED Hazard Lights: <https://youtu.be/DHJZTb7qXQo>



Figure 3 - Non-LED Hazard Lights

The video for Figure 4 shows the use of an RRFB, where the flashing LED device does not carefully warn, but rather assaults people, violating their civil rights, damaging their eyes, interfering with the functioning of their nerves, and endangering their lives.

Rectangular Rapid Flashing Beacon: <https://youtu.be/KBltx0Argag>



Figure 4 - RRFB

LED flashing lights turn on and off nearly instantly and the spatially non-uniform radiation and extreme variability between peak radiance and edge radiance triggers seizures, causes migraines, induces panic attacks, interferes with human nerve functioning, reduces vision, increases agitation, and endangers the lives of the public.

Figure 5 is a diagram showing why the spatial distribution of LED radiation is to toxic and dangerous. The source peak luminance of an LED can be hundreds of thousands or even hundreds of millions of nits, far exceeding human thresholds, and the non-uniform shape and extreme variability of luminance interferes with the human nervous system. The rapid flashing is also toxic, degrades vision, and interferes with the human nervous system.

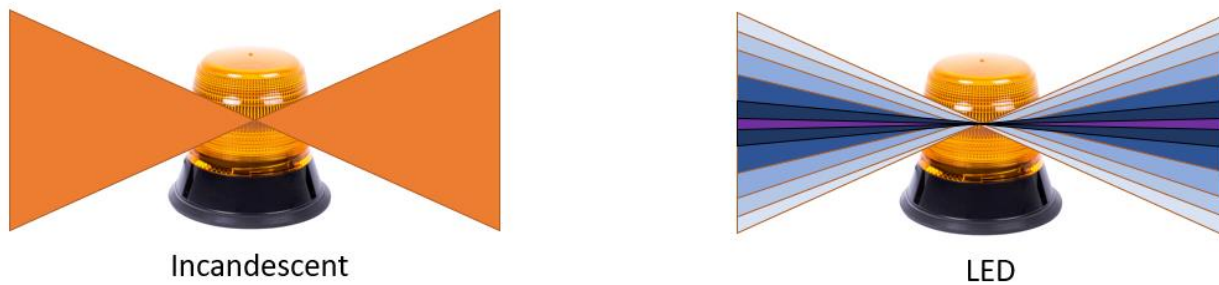
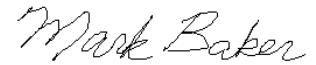


Figure 5 - Incandescent vs. LED Flashing Lights

As stated earlier, RRFBs must be eliminated. Therefore, considering the information that we have provided in this letter, we request the city's written position on the use of RRFBs in Saint Paul.

Sincerely,

A handwritten signature in black ink that reads "Mark Baker". The signature is written in a cursive style with a large initial "M".

Mark Baker
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