

April 6, 2023

BY EMAIL

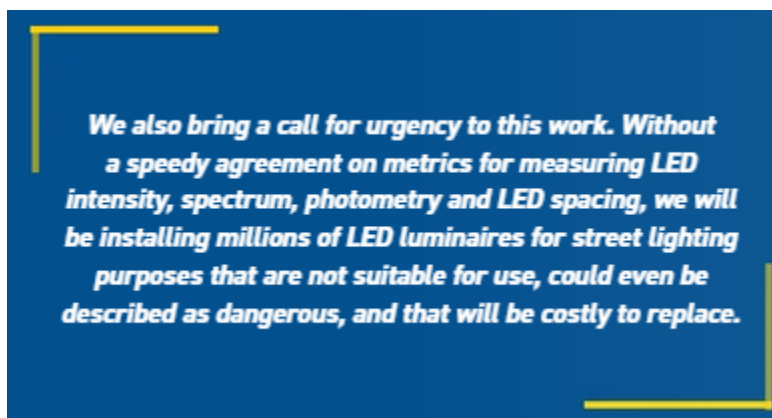
Brian Washington, County Counsel
Marin County, California
bwashington@marincounty.org

Re: LED Streetlight Hazards

Dear Brian Washington,

The Soft Lights Foundation advocates for the protection of the natural night resource and for the protection of citizens from the harms of Light Emitting Diode visible radiation. We are writing to you now to alert your office of the need to stop the LED streetlight conversion project in Marin County due to fundamental health, safety, and federal legal issues.

In December 2021, Cree Lighting published a white paper that alerts government officials to the fact that *"None of the existing metrics [for LED street lighting] takes into account the non-uniform emitting surface of a LED luminaire."*¹ Cree went on to say that LED streetlights are dangerous. Thus, the installation of LED streetlights poses a liability for Marin County.



In March 2022, the US Department of Energy signed a Memorandum of Understanding with the Illuminating Engineering Society to develop *"needed metrics and standards for solid-state lighting (SSL)*

¹ <https://online.flippingbook.com/view/702884488/>

technology.”² The IES standard for street lighting IES RP-8-18 is not applicable to LED street lights, and thus cannot be used by Marin County to ensure safe, uniform illumination patterns for LED street lights.

LEDs emit an unnatural type of visible radiation with spatial, spectral, and temporal properties that are known to be hazardous to human health.^{3,4} The Food and Drug Administration is the sole agency with regulatory authority for LED products. This authority was vested in the FDA by the 1968 Radiation Control for Health and Safety Act and the FDA has confirmed that they have this regulatory authority.⁵ No other federal agency has regulatory authority for LED products, including LED streetlights, and agencies, companies, and organizations such as Marin Clean Energy, Pacific Gas and Electric, California Public Utilities Commission, California Energy Commission, and US Department of Energy have no legal ability to authorize the use of LED products. To date, the FDA has not published the necessary comfort, health, or safety standards for any LED product and has not vetted LED streetlights. Thus, Marin County has no legal authority to install or operate LED streetlights, which creates a significant liability and economic risk for Marin County due to the known hazards of LED visible radiation. When a public official knows, or should have known, of the hazards and lack of legal authority for a project, and yet ignores those hazards and information, the public official may no longer be protected by qualified immunity.

The Americans with Disabilities Act prohibits discrimination and requires equal access to county services. LED streetlights create discriminatory conditions for the class of individuals who cannot neurologically tolerate flat surface, directed energy LED visible radiation. LED streetlights have been documented to trigger photosensitive seizures, debilitating migraines, anxiety, nausea, and numerous other adverse neurological reactions.⁶ Because the FDA has not vetted LED streetlights and their impacts on the disability community, there are no existing federal guidelines or requirements that Marin County can refer to. Since LED streetlights have been proven to be dangerous and discriminatory for certain individuals, Marin County is required by the ADA to remove the barriers to access created by the LED streetlights. The undue burden and reasonable accommodation claim typically used by counties cannot be used in this situation because the installation of LED streetlights is a modification of an existing program, and this modification did not receive approval from the FDA.

In addition to the major legal obstacles discussed above, recent research proves that the switch to LED lighting has drastically increased light pollution due to the directed energy nature of the LED light source, and due to the use of high energy blue wavelength light.⁷ Due to the rollout of LEDs, light pollution is now increasing at a rate of 10% per year, up from the previous 2% per year. Artificial light at night is a major contributor to risk of human diseases such as prostate cancer, breast cancer, mood disorders, diabetes, obesity, and premature births.⁸ A February 8, 2023 press release from the French National Academy of Medicine states, “*Light is an electromagnetic radiation that carries energy capable, by interacting with ocular tissues, regardless of age, of damaging retinal photoreceptors.*” and “*Chronic*

² <https://www.energy.gov/eere/ssl/us-department-energy-and-illuminating-engineering-society-partner-advance-industry>

³ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9420367/>

⁴ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7830240/>

⁵ <https://content.govdelivery.com/accounts/USDHSCBP/bulletins/1a00f8a>

⁶ <http://www.softlights.org/stories/>

⁷ <https://www.science.org/doi/10.1126/science.abq7781>

⁸ <http://www.softlights.org/human-health/>

*exposure to LEDs induces photochemical cell damage that is particularly harmful to the macular retina located in its center and ensuring fine vision, reading, writing and colored vision.”*⁹ LED streetlights present a significant ocular and circadian rhythm hazard and safety risk to citizens and thus the installation or operation of LED streetlights cannot be justified. A March 16, 2023, study shows a direct correlation between artificial light at night and human mortality.¹⁰ LED streetlights will literally kill the residents of Marin County over time.

Often, the installation and operation of streetlights are based on keeping residents safer. Yet, due to the serious adverse health impacts of artificial light at night, the installation and operation of LED streetlights is making Marin County residents sick and unsafe. Research studies show that property crimes increase due to street lighting and also show that streetlights do nothing to improve safety.¹¹

The Soft Lights Foundation petitioned the FDA to regulate LED products on June 12, 2022, and this petition is currently under review.¹² Due to an inquiry by US Senator Maria Cantwell into the FDA’s lack of regulation of LED products, the FDA responded that they are still investigating the issue, because the petition “raises issues requiring further review”.¹³ The FDA’s lead investigator, Dr. Robert Ochs, sent a similar letter, making clear that the FDA has not yet approved LED streetlights.¹⁴ The county may contact FDA Center for Devices and Radiological Health Director Jeffrey Shuren (jeff.shuren@fda.hhs.gov) to learn more about the hazards and lack of regulation of LED radiation devices.

In our experience, counties are most sensitive to cost issues and liability issues. To avoid additional expense and significant future liability, we urge Marin County to stop the current LED streetlight conversion until the FDA publishes performance standards restricting peak luminance, dispersion characteristics, spectral power distribution, and square wave flicker, and until the FDA approves LED streetlights as safe. Once the FDA publishes the necessary regulations for LED streetlights, Marin County might then be able to restart the conversion in a legal, safe, nondiscriminatory manner. However, it is also possible that the FDA will conclude that LED visible radiation is too hazardous to be used for street lighting and that all existing LED street lights would need to be removed to protect public comfort, health, safety, and civil rights.

Protecting the natural night as a resource is a critical function of county government. We urge Marin County to re-assess this entire situation with the goal of protecting starlight, moonlight, and human and ecosystem health.

Sincerely,

/s/ Mark Baker
President

⁹ <https://www.academie-medecine.fr/loeil-et-le-cerveau-des-enfants-et-des-adolescents-sous-la-lumiere-des-ecrans/>

¹⁰ <https://bmcmecine.biomedcentral.com/articles/10.1186/s12916-023-02822-w>

¹¹ <http://www.softlights.org/crime-and-safety/>

¹² <https://www.regulations.gov/document/FDA-2022-P-1151-0001>

¹³ <https://www.softlights.org/wp-content/uploads/2023/03/Maria-Cantwell-Letter.pdf>

¹⁴ https://www.softlights.org/wp-content/uploads/2023/03/2023-917-reply_edited.pdf

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