

# Planning Board Lighting Bylaw FAQ

## **WHAT IS THIS LIGHTING BYLAW ALL ABOUT?**

The new bylaw retains much of the existing bylaw language and updates the guidance in two areas. The first is to set the color temperature of any new LED lighting in town to limit light pollution and **protect human health** and the environment. The second is to modernize the way that lighting plans can be put together to offer more flexibility and customization as well as easier review by the Planning Board.

## **BLUE LIGHT IS ACTUALLY HARMFUL?**

As odd as it might seem, yes! In humans, our biological clock (circadian rhythm) is controlled by a hormone called melatonin. During the day, blue light suppresses this hormone and regulates many body activities. At night, melatonin levels rise to regulate sleep and important night time body functions. Exposure to blue light at night has been shown to have effects on everything from obesity and diabetes, to mood disorders and certain types of cancer. Beyond humans, over 60% of wildlife is nocturnal and continued increases in light pollution have disrupted many species, especially insects. Blue light is also particularly bad for light pollution as it scatters off of surfaces much more than warmer light colors

## **WHAT IS AN LED?**

An LED is a Light Emitting Diode. This is a newer technology used for lighting that doesn't have a bulb, but instead emits light from a circuit. This type of lighting has much lower energy consumption and has been transformational for cutting costs and saving electricity. A typical 100w bulb can be replaced with a 5w LED and the lifetime of these lights is measured in years.

## **WHAT IS COLOR TEMPERATURE?**

LED lighting has a Correlated Color Temperature, or CCT, that simply refers to the color of the light emitted. The colors are rated on a "Kelvin" scale where warmer light that contains more amber and yellow color is lower in number whereas light that is more white and contains more blue color is higher in number.



Correlated color temperature range diagram.

## **THE AMERICAN MEDICAL ASSOCIATION (AMA) RAISED HEALTH CONCERNS ABOUT LED LIGHT?**

In 2016, the AMA published landmark guidance that summarized years of study with LED lighting and its impacts on human health and the environment. Guidance focused on limiting blue color in LED lighting because there was strong evidence that it was causing harm to humans and wildlife. Since then, other major studies have supported this guidance and recommendations.

## **WHY HAVEN'T I HEARD ABOUT THIS BEFORE?**

You may have and not realized it. Most mobile devices now have a "night shift" function on them that cut out blue light from the screen at night time to diminish the impact on your sleep cycle. You may also have seen LED bulbs at Lowes or Home Depot that automatically shift the light color depending on the time of day. Many LEDs are now rated according to how safe

## **DOES THIS MEAN I'M GOING TO HAVE TO CHANGE ALL OF MY LIGHTS?**

No! The bylaw covers only *new lighting in town from this point forward* and there is no requirement to change existing lights. Once existing lighting reaches the end of its lifetime or is broken and needs to be replaced, the new lighting would have to comply with the updated bylaw.

## **WHAT LIGHTS IN TOWN WILL BE COVERED BY THE BYLAW?**

All outdoor lighting in town will be covered by the bylaw - residential, municipal, and commercial - but this is no different than the existing bylaw which covers any flood or spot light over 900 lumens (equivalent of a 60 watt incandescent bulb) or any other light over 1800 lumens (equivalent to a 120 watt incandescent bulb).

## **IS SOUTHBOROUGH THE ONLY TOWN DOING THIS?**

Not at all. There are many towns in MA and across the country that have adopted new lighting bylaws to protect human health and the environment. Additionally, 14 states have established light pollution legislation incorporating LED guidance. Our state legislature currently has identical bills in both the house and senate, which have recently come out of committee with favorable reviews and are slated to be voted on this year. These bills include the same LED guidance proposed in our bylaw.

## **THIS BYLAW GOING TO COST SOUTHBOROUGH MONEY?**

No! All that is required is responsible and compliant lighting choices. The color of the LED is easily tuned in the circuit, which is why you can buy lots of LED bulbs at different colors. They are all the same price and we would just need to buy the luminaries that are environmentally safe at <3000K.

## **ARE TOWN STREET LIGHTS INCLUDED IN THIS BYLAW?**

Yes. We currently rent out street lights from National Grid and our tariff agreement will allow for 3000K replacements when the time comes. Most of the current street lights in town are high pressure sodium lamps, which have a characteristic amber glow. The replacement LED luminaires will be slightly less amber and will be much better at controlling the path of the light and reducing light pollution.