Date: June 25, 2020

To: File cc: HOA Boards (BR & MSBR)

From: Bill Noonan

Subject: Street Lamp - Light Color Temperature Specification

LED light bulb color temperature is represented in the unit of absolute temperature, Kelvin and noted by the symbol K. Of the five LED light bulbs installed previously four LED light bulbs had a color temperature of 3500K and one, the most recently installed had color temperature of 2400K. The attached lamp pole map identifies the location and color temperature of the LED bulbs.

The recommendation to the board is that as we move forward the specification for color temperature for LED bulbs be set at 2400k. (note: recommendation adoped by both MSBR and BR boards).

This recommendation was based on feedback John has received from home owners in both phase I and phase II regarding the brightness of a 3500K bulb. It is also consistent with the specification to be used by phase 1. The observation that a 3500K bulb is to bright is also consistent with the International Dark Sky (IDS) Program, a non-profit organization founded in 2001 to encourage communities, parks and protected areas around the world to reduce light pollution, which can have negative environmental consequences for human and wildlife, through responsible lighting policies.

Lighting with lower color temperatures has less blue in its spectrum and is referred to as being “warm.” Higher color temperature sources of light are rich in blue light, which is similar to daylight. Exposure to blue light at night has also been shown to harm human health and endanger wildlife. IDS recommends that only warm light, in the lower color temperature ranges, be used for outdoor lighting. More specifically IDA recommends that LED street lights be 3000K or preferably less.

As a side note, the original lights which make up 12 of the 17 street lamps are sodium vapor lights. These lights emit a narrow spectrum of pumpkin-colored light and from a pure location specific environmental perspective, according to the IDS, would be the preferred source of lighting near environmentally sensitive areas. In way of additional reference or background:

- **2000K-3000K:** gives off a soft white glow,
- **3100K-4500K:** gives off a bright amount of white light; with a blue hue
- **4600K-6500K:** gives off a bright amount of blue-white light, similar to that of daylight;

As points of reference, household fixtures are commonly found in color temperatures on the Kelvin scale of 2700K (warm incandescent) to 3000K (warm white halogen). A fluorescent light bulb would have a color temperature of 3500K. Color temperatures higher than 3500K are typically only used for commercial buildings.

Attached is updated street lamp map that identifies the location of the LED’s and the color temperature rating of the specific light in that location.

Appendix

Pole ID	Light Type	Installed (age)
Pole 1	Sodium Vapor	
Pole 2	**LED 2400K**	
Pole 3	Sodium Vapor	
Pole 4	**LED 3500K**	
Pole 5	Sodium Vapor	
Pole 6	**LED 3500K**	
Pole 7	Sodium Vapor	
Pole 8	Sodium Vapor	
Pole 9	Sodium Vapor	
Pole 10	Sodium Vapor	
Pole 11	**LED 3500K**	
Pole 12	Sodium Vapor	
Pole 13	Sodium Vapor	
Pole 14	**Downed in storm**	
Pole 15	**LED 3500K**	
Pole 16	Sodium Vapor	
Pole 17	Sodium Vapor	

Specification:
Pole - milled pressure treated 6" x 5" x 20'
Fixture - RSL 350 Series Luminaire
Light - 2400K; 26 watt LED
Installation - pole sunk 5' w/ concrete collar

Location 2 – 2400K

Location 6 – 3500K