

From: Lights Out Bend [<mailto:lightsoutbend2014@gmail.com>]

Sent: Thursday, May 17, 2018 3:01 PM

To: Susanna Julber <sjulber@bendoregon.gov>

Subject: May Transportation Meeting

Susanna Julber, Senior Project & Policy Analyst:

I am contacting you after talking with Nick Arnis, re: speaking @ the Citywide Transportation Advisory Committee Meeting on 30 May 2018 @ 2-5pm.

I am a volunteer with Lights Out Bend (LOB) (<https://www.lightsoutbend.com>). LOB has recently submitted our intent to International Dark-Sky Association (IDA) (<http://darksky.org>) to become a Dark Sky Community (DSC) (<http://darksky.org/?s=dsc>). One of the many requirements in being awarded such a prestigious designation, is compliant streetlights. Aware that the City has a proposal to upgrade streetlights, it is timely for Bend and Central Oregon to become a DSC should IDA-compliant streetlights are chosen.

LOB has spoken to City Council. We were received with encouragement. We are now reaching out to the Citywide Transportation Advisory Committee (TAC). LOB volunteers will be in attendance @ the 30 May 2018 TAC meeting to speak re: our intent and approach for Bend and Central Oregon to be awarded a DSC.

Attached, please find some general information and streetlight options taken from Flagstaff AZ, a DSC. Thank you, Susanna, for forwarding this email to TAC attendees prior to the May meeting so people have some idea of our intent.

If you have any questions, please do not hesitate.

Thank you.

Mary Ann Kruse

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LIGHTS OUT BEND

<https://www.lightsoutbend.com>

"All living things on Earth need and deserve a night sky." Kellie Pendoley

LIGHTS OUT BEND and TRANSPORTATION

www.LightsOutBend.com

Our mission is to honor and preserve—by education and advocacy—the magnificent dark skies of Bend and Central Oregon with successful dark sky practices for the health of all living beings. Our intention is for Bend to become a Dark Sky Community (DSC) as defined by the International Dark-Sky Association (IDA).

Night is part of life's DNA. All life on Earth evolved with a natural day and night cycle. When we remove the darkness of night, many plant and animal species will be lost, human health will be negatively impacted, we will lose that sense of mystery and wonder that a star-studded night provides. So, **darkness matters. And, it's worth preserving and protecting.**

Stray light is wasted light. It is not needed for and does not help visibility. Wasted light happens mostly because people don't think about outdoor lighting and the night. Light fixtures that are poorly designed waste light by letting it shine upward or sideways, dramatically and unnecessarily increasing sky glow, light trespass and glare.

The tendency is for people to say that they feel safer in brightly lit areas, but statistics do not indicate that most crime-plagued areas are made safer by increased lighting. Studies are mixed but results indicate increased crime occurs with increased lighting. More light is not necessarily safer. Citizens also believe that more streetlights offers better visibility. This is a fallacy. More unprotected, unshielded light often lights the space over the street with more light glaring in driver, bicyclist & pedestrian eyes with little light ultimately shining on the street. Current technology shielded, hooded **amber** LED streetlights are the answer to fewer streetlights with better visibility

for all.

COMMERCIAL AND ROADWAY LIGHTING TIPS

Amber lighting is preferred for most commercial and roadway applications. The principal purpose for most outdoor lighting is general illumination for way finding and safety, including parking areas, roadways, walkways and home. Such lighting, "Class 2", should utilize exclusively fully shielded fixtures to limit glare and off-site spread of the light. Amber sources should be used to minimize sky glow, ecological impact and potential human health impacts. The lowest-impact source is narrow band amber or NBA LED. The second-lowest are high-pressure sodium and phosphor-converted amber or PCA LED. Even the lowest-CCT white LED which are often suggested as dark-sky friendly but others have significantly greater impacts than good PCA LED (~2.5 x greater) and dramatically greater than NBA LED (more than 4 x greater).

The International Dark-Sky Association (IDA) offers certification when fixtures meet their standards for dark-sky quality. Such fixtures must be fully shielded and "minimize blue light", which IDA standards implement only as a requirement that the CCT must be 3000K or less.

Kim lighting offers direct-emission amber LEDs in many or most of their outdoor product lines. On their product catalog pages, the NBA LED option is specified by selecting the CCT or 2K 580nm: <https://www.hubbell.com/kimlighting/en/>

See pdf attachment for Fully Shielded Lighting Products with NBA LED option.

Flagstaff is a designated DSC. Innovative lighting codes were developed for Flagstaff and Coconino County that were the first to restrict the amount of light permitted per acre in outdoor lighting installations. Their intent is to encourage lighting practices and systems that will: minimize artificial sky glow, glare and light trespass; conserve energy and resources while maintaining nighttime safety, utility, security and productivity; curtail the degradation of the nighttime visual environment. These lighting codes remain

the only codes demonstrated through research and critical dark-sky analysis to actually reduce sky glow light pollution. Flagstaff Dark Skies Coalition strongly recommends using these codes or models based on them: <http://www.flagstaffdarkskies.org/WPdev/wp-content/uploads/2015/10/CBL-POLC-standard-v2.0.pdf>

SOME CODE AND INFORMATION REFERENCES

Cities

- * Flagstaff AZ Lighting Code:
http://www.flagstaffdarkskies.org/WPdev/wp-content/uploads/2014/11/Flagstaff.LC_.2011.pdf
- * Cottonwood Lighting Code:
<http://cottonwoodaz.gov/Search?searchPhrase=lighting%20code>
- * Sedona Lighting Code:
<http://www.codepublishing.com/AZ/Sedona/html/SedonaLDC/SedonaLDC09.html#911>

COUNTIES

- * Coconino County AZ Lighting Code
<http://www.coconino.az.gov/DocumentCenter/View/4617>

LIGHTING ORDINANCE REFERENCE MATERIALS

- * Ordinances for Regulating Outdoor Lighting Practices (Illinois Coalition for Responsible Lighting)
<http://www.illinoislighting.org/propose2.html>

- * IDA Outdoor Lighting Code Handbook
<http://darksky.org/?s=lighting+code+handbook>
- * Digital Billboard Luminance Recommendations
<http://www.flagstaffdarkskies.org/WPdev/wp-content/uploads/2013/03/Digital-Billboard-Luminance-Recommendation-ver-4.pdf>

The references and information used here are taken from Flagstaff Dark Skies Coalition: <http://www.flagstaffdarkskies.org>

Sky Glow Impact (per lumen) 1.0 – 1.3

Kim Lighting

Altitude



Ouro



Warp9



Curvilinear



ArcheType



Entablature



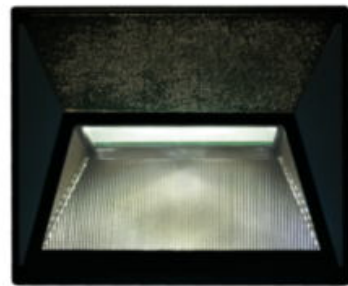
Era



Era Bell



Site Lightforms



Beacon Lighting

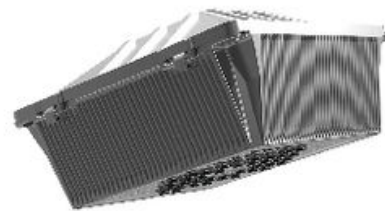
Cruzer



Viper
(Large and Small)



Endura



Slide



Urban



Traverse



Hubbell Lighting

Cimarron LED



LNC Litepak



LNC2 Litepak



Lighting Products with PCA LED option

Sky Glow impact (per lumen) 1.8 – 4.1

Philips Gardco Lighting

Pureform Bollard



Ecoform

