



CPDSC Quarterly CONNECTIONS - March 6, 2024 - Q&A
Outdoor Lighting Part 1: Advancements in Technology, Planning and Design

Questions from the Audience:

FOR NANCY CLANTON:

Q: Nancy, is there a case study document or something about lighting to the park visitor center to 2 moonlights with no complaints? That would be really useful for talking to clients who think "more is better." (Q from: Amber Haymes)

- **A:** The study conducted at Grand Canyon National Park was internal to the design team and NPS personnel to better understand what the visitors of the park were satisfied with lighting level and color of the light. Other current resources include the NPS Sustainable Outdoor Lighting Principles guidelines: <https://www.nps.gov/subjects/nightskies/sustainable-outdoor-lighting.htm>

Q: What level of lighting expertise is needed for AGI-32? (Q from: Bryan Cashion)

- **A:** AGI32 is lighting software that uses luminaire photometric data to calculate illumination levels and more for specific lighting applications. AGI32 offers tutorials on their software which is a great starting point for anyone interested in understanding the lighting expertise needed and how to apply this lighting software tool: <https://lightinganalysts.com/learn/agi32-tutorial-training/>

FOR ASHLEY PIPKIN

Q: What was the specific EDA grant program that provided the funding? (Brandie McNamee is also interested in this program.) (Q from: Hilary Sager)

- **A:** "Hi Hilary, the grant was through the U.S. Economic Development Administration (EDA) that awarded the Nevada Division of Outdoor Recreation (NDOR) and the City of Boulder City, Nevada \$1.9 million in federal funds from the American Rescue Plan Act (ARPA)." (A from: Lisa Stoner, in Chat)

Q: How long did it take to develop the grant application for Boulder City? How long after submission was it granted? (Q from: Bryan Cashion)

- **A:** I answered this one live but let me know if you would like any follow-up about it.

Q: What method was used to measure skyglow for the Boulder City project? (Q from: Cesar San Miguel)

- **A:** We used:
 - illuminance meters on the street to measure uniformity and brightness

- a handheld spectrometer for color temperature
- a narrow-band spectrometer to measure skyglow
- the NPS all sky CCD camera to measure skyglow
- the NPS fish eye lens to measure skyglow
- VIIRS data for before and after measurements.

Another option we did not use is SQM measurements, there are some very interesting projects out of Oregon that do deploy this technology for long term monitoring.

Q: Do you have a cost estimate for the lighting engineer component in the \$1.9 million? (Q from: Bryan Cashion)

- **A:** I am sorry Bryan but I do not. I looked into what it would cost to get some minor amounts of help along with my personal expertise that I was sharing and it started at 5,000. I think that was likely a generous discount and would go up depending on the work necessary and how much assistance the project needed.

Q: What is the cutoff angle for the cobra lighting mentioned in the presentation? (Q from: Val Szwarc)

- **A:** My light had an uplight of 0 so I am not sure what the angle was exactly.

FOR RICK UTTIG

Q: Are there any public lighting manufacturers addressing this obvious problem/challenge that would "fix" existing bad lights, without outright replacement, that wouldn't break city budgets? (Q from: Richard Tenney)

- **A:** Unfortunately, state, municipal, and utility owned public light fixtures are very price sensitive. For this reason, regulation may be our best option to force quality. DarkSky is working with NEMA (the lighting group that represents major lighting manufacturers) to endorse the newly proposed DarkSky Approved Luminaire program. This would include the 80° cutoff requirement and CCT restrictions. If endorsed, we can expect lighting manufacturers to design 10° shields as field installed options for new and retrofit installations.

Q: What do you make of the evidence that the low cost of LED lighting products has accelerated the consumption of light at night around the world? (Q from: John Barentine)

- **A:** Developing and fostering a list of DarkSky approved products and getting manufacturers to design towards that list will allow places like Home Depot and Amazon to develop branded end caps for DarkSky product. (A from: Rick Uttig)

Q: What can be done to convince more municipalities, companies, etc., to follow the recommendations in the IES RP's? (Q from: John Barentine)

- **A:** Public pressure, DarkSky status and recognition for cities, places, and developers, other lighting standards that mirror IES, and state or local regulation. (A from: Rick Uttig)

FOR ANY

Q: Has there been research on a minimum height for street lighting? As you know the higher, the more light can be considered "trespass" because you can't shade the down light. (Q from: Bob Grossman)

- **A:** City infrastructure, desired pole spacing, aimed distribution of light, and elevation change all work together to determine height. Optical design and shielding are our best tools to put light only where needed. (A from: Rick Uttig)

Q: When in March will the new luminaire information be released by DSI? (Q from: Alan Eastman)

- **A:** The date is now June 2024 to coordinate with the launch of new legislative/ordinance templates (A from: Rick Uttig)

Q: When will DSI publish an updated Model lighting Ordinance? (Q from: Val Szwarc)

- **A:** June 2024 (A from: Rick Uttig)

Q: How do we find luminaires that can help us? (Q from: Blaine Fackrell)

- **A:** The best way right now is to google “DarkSky Approved Luminaire” and add the type of luminaire you are looking for. (A from: Rick Uttig)

Q: How were communities that have developed and implemented dark sky friendly outdoor lighting codes engaged in the new model lighting code, to incorporate the realities they face of enforcing pre and post permitting, and with limited capacity, state code framework? (Q from: Kalen Jones)

- **A:** Community feedback in Aspen CO, Albany CA, Albuquerque NM, and Santa Ana CA, helped shape much of the criteria, along with a review of about 25 existing DarkSky ordinances. The new draft template has since been provided to Santa Cruz CA, and Fenwick Island DE for comment and this far, Santa Cruz is extremely happy. (A from: Rick Uttig)

Q: The gorilla in the room is car headlights. Is anything being done to reduce their enormous impact? (Q from: Bob Grossman)

- **A:** Headlight glare is definitely an on-going problem. I did find this article in NBC news about how glare reducing headlights are offered in every country but the USA. I did know that many of the European cars have developed headlight technology that does not direct light into driver’s eyes. It looks like the USA needs to catch up! <https://www.nbcnews.com/news/us-news/blinded-light-american-headlight-safety-lags-years-countries-rcna82666> (A from: Nancy Clanton)

Q: I have photophobia and am trying to explain to my city the disability glare caused by recent LED lighting fixtures. I am seeking advocacy support. (Q from: Neela Ranganathan)

- **A:** The Illuminating Engineering Society (IES) has a lighting standard to address this problem, referred to as “[Recommended Practice RP-28-20, Lighting and the Visual Environment for Older Adults and the Visually Impaired](#).” This link is to the actual standard, which will provide more information but at a cost. Here is a link to the [IES Committee that addresses this subject](#). I hope to address human health and safety in a future *Quarterly CONNECTIONS* and will keep this question in mind. (A from: Lisa Stoner)

Q: Does anyone have good experience with smaller areas such as HOA's that they would like to share? (Q from: Alan Eastman)

- **A:** Great question Alan. However, we did not get a specific answer for this. I will keep this in mind for future *Quarterly CONNECTIONS*. (A from: Lisa Stoner)