



**CPDSC Quarterly CONNECTIONS - June 5, 2024 - Q&A  
Outdoor Lighting Part 2: Policies and Implementation**

**Questions from the Audience:**

**FOR MOAB (Responses from Alexi Lamm and Cory Shurtleff)**

**Q:** How do you address the concerns about the cost of retrofit to businesses & residential housing. Where do funds come from for the Assistance Program? (Q from: Alan Eastman, UT)

- **A:** Financial assistance is available to residents through the nonprofit [Friends of Arches and Canyonlands/Moab Dark Skies](#), which was originally funded by a grant through UCAIR. Though businesses are not eligible for this program, residents and businesses will have had 10 years to make the switch by 2029. We are actively publishing in the local paper and distributing materials to inform people about the upcoming deadline, which gives people some time to plan for necessary updates.

**Q:** Was a 2200K standard addressed at all for Moab ordinance? (Q from: Dawn Nilson, OR)

- **A:** The standard set in 2019 was for 3000K. We chose to keep the standard during the 2023 update, so we would not create a moving target for the community. Additionally, 3000K is the lowest CCT that is consistently available for some fixtures, e.g. the city's utility began offering 3000K at the request of communities like Moab. It does not offer a lower CCT for streetlights.

**Q:** Arches National Park is only 5 miles from Moab. How did they qualify as a dark sky park so close to Moab? (Q from: Barry A Bertani, AZ)

- **A:** Arches still reports 21.27 mag/arc seconds sq. in the park, which is above the 21.2 requirement for certified International Dark Sky Parks.  
(A from: Michael Rymer, DarkSky International)

**FOR FLAGSTAFF (Responses from Christian Luginbuhl)**

**Q:** Is Motel 6 in Flagstaff in compliance yet? (Q from: Dan Duriscoe, CA)

- **A:** I'm sorry I cannot answer. There are actually two Motel 6 sites in Flagstaff but I do not keep abreast of lighting upgrades/retrofits except for sites I happen to pass by frequently.

**Q:** What was done specifically to get the commercial people on line to change lighting? (I had heard that in Flagstaff the car dealerships were initially helpful in leading other commercial on board. Central Oregon has 3 observatories like Flagstaff, but dark sky is put on low priority by local governments...)  
(Q from: Barb Rumer, OR)

- **A:** Keep in mind that Flagstaff does not have a sunset clause (that is no amortization is applied), meaning that non-conforming sites are permitted to stay nonconforming in perpetuity unless they replace lighting. So in that context I'm not sure of the meaning of your question. There was no buy-in necessary to commit to retrofitting lighting.

**FOR MOAB and FLAGSTAFF Responses from Alexi Lamm, Cory Shurtleff, and Christian Luginbuhl)**

**Q:** I assume most of these changes, ordinances, etc., are funded by city governments. Is there any funding to help people or businesses with compliance? Where can such funding be found?

(Q from: Alan Eastman, UT)

- **A: Moab:** The city is funding updates to city owned or operated facilities, which includes buildings, parks, and streetlights. These are funded by the city, though switching to more efficient fixtures means that the transition has an estimated payback on streetlights of about four years. Assistance for lighting updates is available through a local nonprofit for residents. Though businesses are ineligible for that source of assistance, we will have been providing information on the 2029 deadline for 10 years, which means all new construction and updates will have been coming into compliance through the permitting process for some time. Others will have had the opportunity to plan for the needed updates.
- **A: Flagstaff:** again, as there are no sunset clauses in Flagstaff code (not allowed by Arizona Constitution and case law in my understanding), any retrofits occur only when the property owner decides to change lighting for their own reasons, such as aging equipment or changes in corporate standards. Like Moab, the city has committed to upgrading and replacing all of their lighting including streetlighting to conform to the standards. This was funded through a tax-supported bond initiative.

**Q:** Can you talk more about review and compliance process in your communities, and how this can be binding? In particular something like a "certificate of appropriateness" process? (I sit on a city commission, not lighting related, but maybe similar concerns.

(Q from: Bradley Carlson, NV)

- **A: Moab** approached Dark Sky regulations through our Land Use Code and subsequently through the mechanisms of Land Use law of Utah. The frameworks for review and compliance paralleled how we approach building and development review and compliance. By that, we essentially use Certificates of Occupancy and our Legal, Non-Conforming Code as a form of a "certificate of appropriateness". New construction will receive a planning level of approval and/or building permit approval, followed by the certificate of occupancy confirming the properties compliance. Existing construction coming into compliance voluntarily or through our code compliance process would likely receive an additional permit to confirm compliance or at the very least a compliance report that would confirm any non-compliance or violation has been resolved. These approved forms of compliance will act as the legal status as it relates to the Land Use Code and Land Use law in Utah (Cory Shurtleff, Planning Director, City of Moab).
- **A: Flagstaff:** the lighting code is a chapter of the zoning code so implemented and reviewed for compliance the same as any zoning regulation. A specific permit is required for lighting – the lighting permit. After construction the property is inspected by building officials and by the Lighting Specialist (a special code compliance position) for conformance with the approved plans, and if not in compliance then the certificate of occupancy is withheld.

**Q:** Would [dark sky-compliant] commercial companies be willing to give credence or leadership to other companies in same dealerships? (For instance, perhaps a comment such as, "it wasn't so bad," - OR - can all Toyota, Ford companies, etc. change their lighting in other cities, - OR - can the local car

dealerships write a letter to other car dealerships saying they have completed their lighting changes and encourage other dealerships to do the same.)

(Q from: Barb Rumer, OR)

- **A: Moab:** I can see why you would be interested in this type of advocacy. Advocates in Moab have done significant work to communicate (and still many people misunderstand) that “dark skies” doesn’t mean “dark streets.” It’s likely this education would be important for commercial partners too. As a city, we have not pursued asking chains to change their lights or policies in locations outside Moab. However, several hotel chains have locations in Moab. It’s possible some of them could provide that type of feedback to their corporate office or set an example for other locations. One example might be [Under Canvas](#), which now has five Dark Sky resorts. I imagine it would be more challenging with commercial operations that do not perceive their connection to the night sky or better lighting.
- **A: Flagstaff:** you are describing a process whereby business owners or companies may engage in community activism or educational process. While some local owners may engage in this way, my experience is that most do not. It may be productive for members in your community, either advocates or business owners, to reach out to owners in communities with good examples of lighting standards, to ask for this kind of support.

**Q:** Isn't it the commercial ventures that add to light pollution more than the residential? Where should the bulk of local dark sky energy for lighting change be directed? Residential? Commercial? (If commercial companies could be brought "on board" to change voluntarily, that would help a lot, especially when local governments have put upgrading codes on low priority.)

(Q from: Barb Rumer, OR)

- **A:** In **Moab**, I think it would be accurate to say that the Commercial properties produce higher levels of “light pollution”, or specifically Light Output that is Up-lighting. The way we have designed our code, we are applying equal “energy” (regulation) towards residential and commercial compliance. We prioritized three methods for regulatory compliance: Termination of Nuisance Lighting through a violation process, Legal Non-Conforming voluntary compliance, and an Immediate Termination Amortization Deadline. Through these compliance processes, the City is taking specific action to initiate compliance with the Commercial properties, meaning we are not depending on complaints from citizens to begin action. For residential properties, we are maintaining a more compliant and citizen based initiative for compliance. To summarize, we believe Moab recognizes the higher impact of commercial properties on sky glow and will be approaching compliance for those properties in a more direct and immediate way; obviously we are looking to coordinate and facilitate compliance by “bringing them on board” as early as possible, as the expense for compliance conversions are often much more expensive than the residential properties. (Cory Shurtleff, Planning Director, City of Moab).
- **A: Flagstaff:** There was a comprehensive study made of lighting in Flagstaff in the early 2000's. This chart shows the upright (direct up from unshielded fixtures + light reflected up from illuminated ground) from several categories.

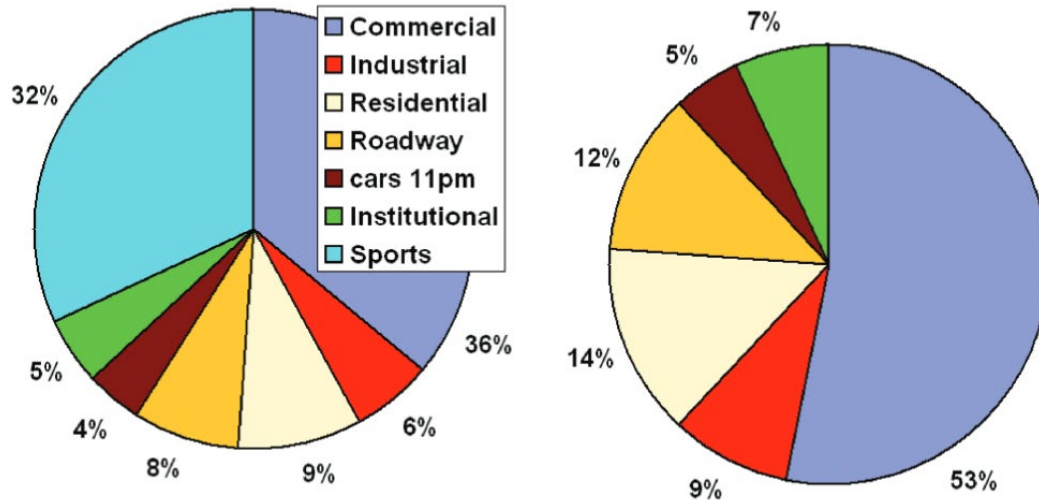


FIG. 5—Adjusted Total Uplight by Category (excluding post-1989 lighting). (a) Sports on; (b) Sports off.

So yes, commercial/industrial lighting dominates and residential lighting is a relatively small fraction of the total amount of light getting into the sky. But I caution that residential lighting has a disproportionate impact on people "where they live," and that there are other impacts to residential lighting such as light trespass which have greater impacts in residential settings even if the total amount used in commercial or public areas is greater. So codes focused on protecting the visibility of stars (as well as other gross measures like energy use) would do well to prioritize the commercial uses of lighting (and sportslighting); those concerned with neighbor-to-neighbor impacts such as light trespass need to find ways to address residential lighting effectively. Most communities will want to address both.

**Q:** What has been the most effective method for pushing city governments to put upgrading lighting codes to the fore-front? (Yes, it is onerous and takes staff time to put codes in place, but it is far easier for governmental bodies to say they support dark skies, but actually put the work on "low priority," which can delay the work for another 10 years.)

(Q from: Barb Rumer, OR)

- A: Moab:** For Moab, the difference between contemplating becoming a Dark Sky Community and actively pursuing it was 14 years and growth of support from the community. It was first discussed in 2002, but an active push from a local nonprofit and other active residents over the course of years that included lighting workshops, art shows, star parties, and a joint meeting of the city and county council made the initiative a priority for the city. That didn't gain momentum until 2016. Without that push, the city might still be contemplating instead of celebrating the designation in 2024.

**A: Flagstaff:** Grassroots pressure (underscoring Moab). It must be more than a few folks asking. Focus initial efforts on raising awareness about the value of night by promoting the "culture of night" through nighttime community activities such as star parties, watching moon rises, full moon hikes, etc. Astronomy is a good hook but do not let the conversation assume that it matters only to astronomers and stargazers. Focus on raising awareness that protecting the night through sensible lighting standards is compatible with better quality lighting and vibrant communities overall.

**Q:** I'm on the East Coast outside of Washington DC, I hate to feel that it is futile. Is there hope for us here? The population is so much higher. I get very discouraged some days.

(Q from: Eileen Kragie, VA)

- **A: Moab:** It's a given that Moab is in a much less densely populated area, and neighboring parks with the designation and astrotourism were among the motivating factors, which probably won't be the case in DC. However, human and environmental health were also considerations, which would be relevant. When I was out this past weekend looking at Moab's sky glow, I was thinking that even if we couldn't bring the upward glow to zero, the changes with the code mean we've been moving slowly in the right direction since 2019. That would be the hope for me if I lived in a densely populated area. If the code could be updated, then the trajectory of lighting would change, and it might inspire neighboring communities to try it too.
- **A: Flagstaff:** Your feelings are understandable. You will indeed not restore a sky like that over Moab in your area. But besides the non-stellar benefits described above, there are even substantial night sky benefits within reach with better quality lighting promoted by dark sky lighting standards. You can improve star visibility even in heavily urbanized areas by dramatic fractions – increasing the number of stars visible from perhaps 100 to many hundreds. But even more, the halo that spreads sky glow outside of the brightly illuminated urbanized areas will dramatically shrink, returning many more stars and even the Milky Way to the nearer and farther suburbs. If upward light emissions are reduced by 90% (demonstrated to be within reach!), the number of stars visible overhead can increase from ~100 to ~500 (details depending on location), a 400% increase! But the size of the halo spreading into the suburbs will decrease in diameter a similar proportion, meaning that the area covered by that light pollution will shrink 99%! And all of this benefit comes with improved lighting and visibility on the ground. No one has to turn off any lights that they need.

**Q:** What does amortization mean, the time when everyone needs to comply to new ordinances?

(Q from: Eileen Kragie, VA)

- **A:** Yes, that's right! (A from: Michael Rymer, DarkSky International)
- **A: Flagstaff:** Additional note – the legal availability of this option varies by jurisdiction. Some jurisdictions (e.g. Arizona) require perpetual grandfather rights, that is no sunset clause or amortization schedule is permitted. In locations where it is permitted it should be considered, but it is a much bigger political hurdle to accomplish, particularly with communities who are new to dark skies awareness and protection and unfamiliar with the characteristics of lighting required by the standards. It's always harder to do something that is going to cost private property owners money, of course.