

**Additional Follow-Up to Written Testimonies Objecting to
LD 1934, "An Act to Promote Responsible Outdoor Lighting"**

**Maine State Legislature
Committee on State and Local Government**

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This testimony responds to specific objections raised in response to LD 1934.

MAINE DEPARTMENT OF TRANSPORTATION — PUBLIC SAFETY

Meghan Russo, Director of Government Affairs at the Maine Department of Transportation (MaineDOT), submitted testimony opposing LD 1934. Where MaineDOT is a respected government agency asserting that 4,000K lighting is needed for public safety, and the testimony asserts that "(g)uidance from the Federal Highway Administration (FHWA) has also confirmed there is evidence that light with a high blue content can increase alertness and enhance cognitive performance of motorists," it is especially important to understand why both MaineDOT and the FHWA are wrong.

The electrical engineer Dwight Lanpher's rebuttal to MaineDOT's testimony explains why 4,000K lighting is ill-suited for highways when compared with the lighting proposed in LD 1934. In case a lay explanation may help in understanding the technical details, I offer this, with the caveat that if anything I say is not exactly right by engineering standards, Mr. Lanpher's testimony stands correctly on its own.

MaineDOT's testimony compares high-pressure sodium lighting of 2100 Kelvin with 4000 Kelvin LED lighting, but does not note that high-pressure sodium lighting is notorious for how badly it reduces contrast by blending the full range of colors that the eye can see into a mass of ill-defined reddish-yellow. Similarly to how one can blend the water-color paints that nearly everyone has played with at some point in their lifetimes, there are various ways that different light sources can combine the many colors that the eye can see to yield a warm light at the desired 2,700K. The best of these yield light that is better at rendering contrast and colors than 4,000K LEDs, which render the world in a bluish hue.

Historically, when high-pressure sodium was the only available light for highways, the world looked suddenly better with the appearance of 4,000K LEDs, but does not make them the best choice for today. By improving visual acuity over 4,000K lighting, lighting meeting the standards proposed in LD 1934 would be better and safer still.

MaineDOT should also consider the effects of driving from darkness into 4,000K lighting and then back into darkness, a common occurrence on Maine's rural highways. 4,000K lighting harms night vision, reducing acuity while the eye re-adjusts upon the return to darkness. Anyone with keen awareness of their own vision could test this and see that it is so. Better lighting at 2,700K would prove to be not only just as good or better within the lit area, but superior in the transition back into darkness, during which accidents caused by lack of acuity during re-adjustment to darkness would be more likely to occur. At 45 to 65 miles per hour, this is a version of the trouble seeing that we all have when a bedside lamp is suddenly turned on in the middle of the night. The wrong light is blinding when one's eyes are adjusted to darkness.

Regardless of whether LD 1934 passes, MaineDOT should investigate the color of its lighting. The result would be to reject 4,000K and prefer the lighting that LD 1934 seeks to encourage for improving safety.

SKI MAINE ON LIGHTING SKI SLOPES

I, and I believe everyone in Dark Sky Maine, unequivocally do not wish to promote anything that harms the ski industry. Standards for dark sky lighting reflect this ethic, stating that the skies should be protected as well as they can without reducing public safety. The simple truth is that, under most circumstances, dark sky lighting makes for better visual acuity and a safer world. Nevertheless, after further study since the hearing, I have altered my position.

It turns out that, because fresh snow is more than 97% reflective, ski areas can not be made fully dark sky compliant. Virtually all of the light will bounce up into the sky. While LD 1934 does not apply to privately owned ski areas, publicly owned ski areas should get the exemption they have requested, although it would be best if they did what they could to help. Let them be a model for the private ski areas, which ought to want to support the broader tourist industry that relies on dark skies. Lights could be shielded, to prevent bare fixtures from being glaringly visible from many miles away whenever possible. Areas off the slopes could use standard dark sky lighting, to reduce the reflected sky glow. During snow-making times, perhaps less light could be used.

It would be valuable to learn whether the issues about 4,000K lighting described in rebuttal to MaineDOT also apply to ski areas. Is there something about seeing on snow that actually causes skiers to respond better to this lighting, or is this another example of old misunderstandings that die hard? If 4,000K lighting truly proved to be safest for skiers, I would support it and encourage others to support it, despite its harm to the skies. But if, for example, the best 2,700K lighting that would make highways safer would also be safer for skiers, then I do not doubt that the ski areas would want to support it as an improved standard.

AVOIDING BROWN TAIL MOTHS

The testimony of Susan H. Brawley, Professor Emerita of Marine Biology & Plant Biology, University of Maine, Orono, answered a question asked at the May 12 hearing: What would be the best lighting to not attract brown-tailed moths? Professor Brawley notes that Assistant Professor of Forest Entomology Angela Mech, of the School of Biology & Ecology at the University of Maine, Orono, has advised that "brown-tailed moths are highly attracted by blue-white LEDs (high Kelvin rating) and has advised that lights should be turned off at night or yellow (lower Kelvin rating)-LEDs used to prevent your yard becoming a magnet for brown-tailed moths." Given the recurring problem with brown tail moths throughout many parts of Maine, it is encouraging to know that, in favoring light of the right color to improve visual acuity and protect Maine's dark skies, LD 1934 would also protect our yards from brown-tailed moths! See: (<https://content.govdelivery.com/accounts/MEDACF/bulletins/3a57bf6>).

MAINE OFFICE OF COMMUNITY AFFAIRS — FUNDING FOR IMPLEMENTATION NEEDED?

Director Samantha Horn of the Maine Office of Community Affairs notes that "(T)here is likely to be a significant cost associated with providing the necessary technical assistance to the nearly 500 municipalities in Maine if they are required to adopt an ordinance." Her office is neutral on LD 1934, but anticipates needing an increased budget to cope with the increased requests for delivering technical help. The additional investment needed to create financial savings for everyone should be considered and raised if necessary; Maine should not be so short-sighted as to refuse the small investment that would save a fortune in operating costs over time, while increasing Maine's earnings due to increased tourism.

MAINE MUNICIPAL ASSOCIATION

Rebecca Lambert's testimony suggests that the Maine Municipal Association misunderstands the affect of the bill. I suspect that the Association will support it once they understand it, and after their potential need for increased funding is addressed.

Here is a summary of the bill that I originally wrote and sent to members of the Central Maine Astronomical Society:

LD 1934, "An Act to Promote Responsible Outdoor Lighting," is a proposed law for the State of Maine that:

Requires public improvements (whether state, municipal, or funded with public grants) to be dark-sky friendly going forward, including renovations. It absolutely does not require anyone to replace existing fixtures now.

Directs the Maine Office of Community Affairs to draft a model ordinance in 2026. That helps municipalities, so that they will not have to determine on their own how to select dark sky lighting.

Requires municipalities to adopt outdoor lighting ordinances by 2028. The aforementioned model ordinance simplifies this process, by delivering a menu of good ideas that can be applied as appropriate to each municipality's needs.

The Association worries that, “To impose a one-size-fits-all state mandate is not only unnecessary but risks a potential override to existing local regulations—a move that undermines the very principle of home rule authority.” As the above summary shows, the bill does not seek a “one-size-fits-all state mandate.” It stipulates that a model be created to serve as a menu from which municipalities may select relevant parts. No one is against “home rule authority,” yet misguided home-rule authority should not bring harm to the greater good. The Maine Municipal Association’s objection should state why objecting communities would want to avoid lowering their electricity costs in the future, why they would refuse to meet the public's desire to preserve dark skies and avoid glaring lighting, and why they should be allowed to harm the dark skies that generate money from tourism.

The Association's testimony also reads that, “If this bill were to move forward, our members kindly suggest model policies, technical guidance, possibly in connection with the recently created Maine Office of Community Affairs, and potential funding sources, rather than dictating compliance through an unfunded requirement.” In a fortunate step ahead of the Association, LD 1934 explicitly provides for that very office to create such model policies. Furthermore, it only requires compliance when old systems are replaced or new construction needs new lighting. In the past, the State of Maine has not promised to fund local planning's design of new lighting. If the Maine Municipal Association seeks to move this funding from local to state budgets, it is welcome to propose such a law.

CONCERNS OF A SKEPTICAL CITIZEN

Everyone deserves to have concerns answered. Diane Vernsoni of Topsham's testimony illustrates how misunderstandings can lead to concerns about the effects of a proposed law which would do no harm, while improving everyone's life.

This testamentary begins by stating that, "'Unnecessary light' is given no parameters, it is subjective and opinion.” Section 2 of LD 1934 specifically proposes that Maine will adopt the following lighting standards set by the American National Standards Institute / Illuminating Engineering Society ("ANSI/IES"):

- RP-6: Outdoor Sports and Recreational Areas
- RP-7: Outdoor Industrial Areas
- RP-8: Roadway and Parking Facilities
- RP-40: Port Terminals
- RP-43: Outdoor Pedestrian Areas

The Illuminating Engineering Society is a private organization that supports its work by selling the details of its widely-adopted standards to governments and engineering firms, so I can not reprint them here. Nevertheless, I can say that the standards create the right amount of light, in the right color, without glare, at the lowest cost, to improve vision and assure safety. Because excessive light, in the wrong color, and with glare, simultaneously reduces visual acuity, wastes money, and creates sky glow, meeting these standards assures the best lighting in every way possible. There is no downside.

This testimony states that, "One person's 'too bright' may be another person's 'too dim!'" yet LD 1934 has nothing to do with idiosyncratic perceptions of lighting. It seeks to move Maine into better, safer lighting for everyone at lower cost, as explained in testimony that I sent previously (on May 12, 2025), in regard to concerns about how the law might affect "secure facilities" such as military bases, police stations, prisons, and the like:

People intuitively presume that "brighter" lighting somehow makes it easier to see at night. That is dead wrong, yet the complexities of how night vision works in relation to lighting at night make this a completely honorable concern. Light at once enables us to see, and also harms our ability to see in dark conditions. As examples, consider the well-know cases of flipping on the bedroom light in the middle of the night and then being unable to see in a dimmer hallway, or being blinded by oncoming headlights while driving. Dark sky lighting achieves a remarkable balance by directing only the right amount of the right color of light to exactly where it needs to be. In all cases, secure facilities will be more secure with dark sky lighting than they were before, because those supervising the areas will be able to see much better. This includes both seeing into the lit area, and suddenly switching to see into the darkness beyond. Dark sky lighting is not an inadequate, dim version of ordinary lighting. It is something different and altogether better, if difficult to imagine if one has never seen it.

Lighting that is better for secure facilities will also be better for the general public.

There was also concern expressed, incorrectly, that the law, "doesn't state whether present lighting will be grandfathered." Grandfathering is assured because LD 1934 affects only public outdoor lighting that is installed or replaced beginning on October 1, 2026, meaning that all current lighting will continue to be allowed.

There were financial concerns: "This could be quite costly to some if they have to replace all their outside lighting, business or private." The law will not force anyone to replace current lighting. Furthermore, LD 1934 does not apply to lighting on private property (except in rare cases of its being paid for by public grants). There is no reason for homeowners to be concerned about forced expenses.

There were worries about misguided local control, a fear that the law, "allows the municipality the ability to make their own 'unnecessary light' rules, which could be even more strict." That is true, but not bad. In support of home rule, municipalities may create stricter rules. There is no reason to believe that this would occur often, or that it would be tyrannical.

There was an expression of fear that the law would "put() people at the mercy of their neighbors, who, for whatever reason, may have an issue with their neighbors who can make them go to this expense for no other reason than they can." As previously noted, the law would not apply to private landowners, so

no town could pass a law to spite neighbors into paying for new lighting. In any case, if there is to be an objection, the opposing comments should explain why those who would ruin the night sky and disturb their neighbors with stray light are entitled to harm them, yet those being harmed should not be allowed to seek redress. Building a marketplace that would make universally better lighting readily available would hurt no one, and prevent everyone from being "at the mercy of their neighbors."

I am unconvinced that Mainers' famous independence outweighs their goodwill. The testimony notes that people, "should be given the right to run their property which they pay for as they wish, as long as it doesn't hurt their neighbors." Throughout Maine, many households assert that stray light from their neighbors hurts them. Paying for a property does not entail a right to harm the property of others. The vast majority of testimonies submitted support of LD 1934 and illustrate exactly this point, notably in response to the inadvertent harm done to neighbors of the Travis Mills Foundation. That is an example of the sort of problem that LD 1934 would avoid in the future, at no harm to anyone. (The Travis Mills Foundation is a fine example of a good neighbor, and has only good intentions. The harm from their lighting is surely only inadvertent. I suspect that the Foundation will be more than willing to correct the harm it has inadvertently caused, to the best of its financial ability. Some solutions would save them money on operating costs of the existing lighting, such as turning off lighting when it is not needed.)

Despite all this, the testimony wants to support good lighting, reading, "Added lighting to many areas is a GOOD THING, not a bad thing." This appraisal is not exactly true. It would be correct to say that good lighting is a good thing, and bad lighting is a bad thing, as the many testimonies for this bill illustrate. LD 1934 seeks to light the entire state better and more safely, while lowering costs and removing the harm that bad lighting causes.

It is sad that the author of this testimony states that she has, "put up with a very bright outside light from my neighbor for years and I just put a shade on my window that blocks out the light." I am personally sorry to hear that, yet one citizen tolerating neighbors seizing her window with stray light and forcing her to buy a shade and lose the view does not make for good public policy.

An exclusively internal focus is not within the desired character of Mainers, yet this testimony insists that, "I have the responsibility to my own happiness, not my neighbor." A happier and, I believe, more common notion would be that, often, we can help our neighbors at little or no cost to ourselves, making everyone's life better. At the least, we should not assert a right to harm them, whether with unpleasant stray light or by installing lighting that needlessly harms the tourism industry. Statewide cooperation on better lighting in the future would enhance everyone's quality of life.

The testimony closes on a philosophical note, saying, "Do unto others, as you wish them to do unto you." That is exactly correct! When Maine installs dark sky lighting for its future, everyone's life will be better.

MAINE ASSOCIATION OF REALTORS®

The testimony of J. Andrew Cashman, on behalf of the Maine Association of REALTORS®, opposes LD 1934 based on a misunderstanding that it would affect "residential and commercial real estate transactions," while describing, "outdoor lighting in an urban community being uniquely different than those of a rural farming community." He is concerned about, "the demand for lighting for personal safety or for instance, predation deterrence for farm animals," but does not state any specific details about how or why the proposed lighting might be problematic.

This law would address public improvements, not private property, so private buyers and sellers need not be concerned. If the law did apply, the increased safety and lower operating costs of better lighting has been previously established, and the lack of glare that makes dark sky lighting better suited to protecting secure areas — such as prisons, specifically addressed earlier — would better suit protecting farmyards from predators. When Realtors sell public buildings, the lower operating costs of better lighting could be a selling point, not a deterrent.