

Maine Land Use Planning Commission
Department of Agriculture, Conservation and Forestry



BASIS STATEMENT AND SUMMARY OF COMMENTS FOR
PROPOSED CHAPTER 2 AND CHAPTER 10 RULE REVISIONS:
EXTERIOR LIGHTING AND LIGHTED SIGN STANDARDS

September 11, 2024

STATUTORY AUTHORITY: 12 M.R.S. §§ 685-A(3); 685-A(7-A); and 685-C(5)

FACTUAL AND POLICY BASIS FOR THE RULE AMENDMENTS

Currently, the Land Use Planning Commission has standards for exterior lighting associated with development requiring a permit ([Chapter 10](#), Section 10.25,F,2) and standards for lighted signs (Chapter 10, Section 10.27,J). The current standards are 20 years old and are outdated. The proposed rulemaking aims to update the standards to reflect the changes in lighting technology since they were adopted and to help ensure no undue adverse impacts to natural or scenic resources from unnecessary or inappropriate lighting. Specifically, the proposed update would: require lights to be less than or equal to 3,000 Kelvin; require fully shielded light fixtures for lights over 1,800 lumens; address ski areas and outdoor recreation venues; amend the list of exempted activities; require fully shielded and downward directing lighting for externally illuminated signs; and require a black or dark background for internally illuminated signs. The changes also include clerical edits and minor editing for clarity and conciseness in the included sections.

PUBLIC NOTICE OF RULEMAKING

At a meeting held on May 8, 2024, staff presented the draft rule revisions to the Commission. The Commission voted to initiate rulemaking and post the revisions to public comment, with a 45-day public comment period and an additional 14-day rebuttal period.

Notice of the rulemaking was provided in the Secretary of State's consolidated rulemaking notice on May 29, 2024. In addition to the legal notice, the Commission posted notice by email through the State's GovDelivery system to all individuals wishing to be contacted regarding any proposed rule changes (±2,285 recipients). Notice of the proposed revisions was also posted on the agency's rulemaking webpage. Additionally, staff emailed the GovDelivery notice to the individuals who had

previously participated in the rule development process, expressed an interest in the update, or provided comments during initial outreach.

The record remained open until July 15, 2024, to allow interested persons to file written statements with the Commission; and for an additional 14 days until July 29, 2023, to allow interested persons to file written rebuttal comments.

COMMENTS AND RESPONSES

The Commission received written comments from four individuals and seven non-governmental organizations. No rebuttal comments were received.

1. Topic: Comments Generally Supporting the Proposed Update

All commenters supported updating the lighting and lighted sign standards. Commenters noted the impacts of lighting on public health, wildlife, and safety, and some provided summaries or links to research articles supporting their comments. The cost savings from updating fixtures in terms of energy use were mentioned, as was the increase of dark sky tourism in Maine, particularly in the Katahdin and Rangeley regions. All commenters identified the importance of maintaining Maine's dark sky.

Commenter(s): L. Laycock; A. Jurewicz Leighton; J. Pincince; J. Temple; Appalachian Mountain Club; Dark Sky Maine; Friends of Katahdin Woods and Waters; Maine Audubon; National Parks Conservation Association; Natural Resources Council of Maine; Southern Maine Astronomers

Response: The Commission appreciates the comments and additional information provided.

Action(s): No action taken.

2. Topic: Comments Regarding Correlated Color Temperature

Several commenters recommended reducing the maximum correlated color temperature (CCT) for new exterior lighting and replacement of existing sources for residential, commercial, and industrial developments to 2,700 Kelvin (K). Commenters stated that 2,700 K is widely used as the industry standard to reduce light pollution. Other commenters suggested reserving the right to require fixtures of less than 3,000 K in particular circumstances, including where there are highly reflective surfaces or environmental considerations.

Commenter(s): Appalachian Mountain Club; Dark Sky Maine; Friends of Katahdin Woods and Waters; Maine Audubon; National Parks Conservation Association; Natural Resources Council of Maine; Southern Maine Astronomers

Response: Lights with a CCT of 2,700 K are slightly more amber than lights with a CCT of 3,000 K. Commission staff could not identify any research or source that identified a significant difference between impacts from 2,700 K versus 3,000 K lighting, so staff contacted the commenters and asked for more information to support the recommendation. Based on the response received and additional staff research, no identified significant environmental or public health benefit is achieved by reducing the CCT to 2,700 K. Therefore, no change to the CCT threshold is proposed.

Review criteria in other sections of the Commission’s rules, including Section 10.24(A)(1)(C), require the Commission to find that adequate provision has been made to ensure no undue adverse impacts on existing uses, scenic character, and natural resources. In addition, Section 10.25 allows the Commission to impose “additional reasonable terms and conditions in its permits as the Commission may deem appropriate in order to satisfy the criteria for approval and purposes set forth in the Commission’s statutes, rules and the Comprehensive Land Use Plan.” Consideration will be given to surrounding conditions for projects during the permit review process, and if there are resources identified that are particularly sensitive to CCT, the Commission may opt to reduce the CCT level permitted.

Action(s): No action taken.

3. Topic: Comments Regarding Fully Shielded Fixtures and a Lumens Threshold

Several commenters recommended lowering the threshold for fully shielded light fixtures. An overall threshold of 1,000 lumens or greater was suggested, as well as 1,000 lumens for commercial development and 500 lumens for residential development. Other commenters supported the proposed 1,800-lumen threshold and noted that “many other regulations around the country have moved to the 1,800-lumen level.”

Commenter(s): Appalachian Mountain Club; Dark Sky Maine; Friends of Katahdin Woods and Waters; Maine Audubon; National Parks Conservation Association; Natural Resources Council of Maine; Southern Maine Astronomers

Response: Based on comments received, the Commission conducted additional research regarding an appropriate lumens threshold for requiring fully shielded light fixtures. Towns in Maine have adopted thresholds ranging from 500 (Rangeley) to 2,600 (Greenville). The State of Connecticut has adopted the 1,800-lumen threshold statewide for permanent roadway lighting systems and state buildings and facilities and 2,600 for all other lighting¹. Many communities in New Hampshire have adopted the 1,800-lumen threshold, and state law requires state-funded lighting to be fully shielded fixtures above 1,800 lumens².

The Commission also conducted additional research on the availability and relative costs of exterior lighting, which is 1,800 lumens versus 1,000 lumens, both in terms of bulbs and fixtures. Fixtures and bulbs of both brightness levels are readily available and comparable in cost. A major building supply company provides recommendations for outdoor lighting levels and recommends flood lights between 700 and 1,300 lumens³. Another online lighting information source notes that a 1,800-lumen floodlight is “among the lower brightness levels for an LED security floodlight.”⁴

After considering all available information, the Commission finds that a threshold of 1,800 lumens for requiring fully shielded fixtures as proposed is consistent with common practice and is appropriate at this time.

Action(s): No action taken.

¹ See [Light Pollution Laws \(ct.gov\)](http://lightpollutionlaws.ct.gov)

² See [New Hampshire Statutes - Table of Contents \(state.nh.us\)](http://newhampshirestatutes.com/table-of-contents)

³ See [How Many Lumens are Needed for Outdoor Lighting - The Home Depot](http://www.homedepot.com/How-Many-Lumens-are-Needed-for-Outdoor-Lighting)

⁴ See [How Bright is 1800 Lumens? Your Lumens Brightness Guide \(quickandeasylighting.com\)](http://www.quickandeasylighting.com/How-Bright-is-1800-Lumens-Your-Lumens-Brightness-Guide)

4. Topic: Comments Regarding Exemptions

There were several comments related to the proposed exemptions. One commenter requested that forestry and agriculture activities not be exempted because "rules could apply without causing undue hardship or safety issues." Other commenters suggested defining "temporary" or suggested the Commission develop standards for temporary lighting for roads and agricultural and forest management activities.

Commenter(s): J. Pincince; Appalachian Mountain Club; Friends of Katahdin Woods and Waters; Maine Audubon; National Parks Conservation Association; Natural Resources Council of Maine

Response: The Commission specifically proposed exempting agricultural and forest management activities due to their temporary and sometimes time-sensitive nature. Forest management activities are often conducted during the winter months with short daylight hours when temporary lighting is needed for efficiency. In addition, crews sometimes need to view treetops to ensure safe operations. Agricultural operations also sometimes have short windows for planting or treatment applications that require temporary lighting.

The term "temporary" is used in multiple places in the Commission's rules and is interpreted to mean different time periods depending on the context and the plain meaning of the term as it appears in the rules. For example, a "temporary" public festival might last no more than 2-3 days, but "temporary" road construction activities might last up to 90 days or more. It is unnecessary and impractical for the Commission to define "temporary" and adequately capture each relevant activity addressed in the Commission's rules. The Commission will continue to consider "temporary" activities on a case-by-case basis, applying a reasonableness standard to its evaluation.

Action(s): No action taken.

5. Topic: Comments Regarding After-Hours Lighting and Dimming of Fixtures

Commenters recommended requiring dimming or extinguishing for all lighting, or suggested reducing lighting to security levels one hour after closing. It was also recommended that standards proposed for ski resorts and other outdoor recreational facilities specify that exterior lighting must be turned off after business hours.

Commenter(s): Appalachian Mountain Club; Dark Sky Maine; Maine Audubon; Natural Resources Council of Maine; Southern Maine Astronomers

Response: The Commission addresses the extinguishing of lighting after business hours in the current rules and in the proposed rules in Section 10.25(F)(2)(e) as follows:

- e. For commercial, industrial, and other non-residential development, all non-essential lighting must be turned off after business hours, leaving only the minimal necessary lighting for site security. The term "non-essential" applies, without limitation, to display, aesthetic, and parking lighting that is not motion-activated.

Because some level of security lighting may be necessary for certain types of development, the Commission believes the standard as proposed is appropriate. The above provision would apply to outdoor recreation facilities, making an additional reference in Section 10.25(F)(3) unnecessary.

The Commission will consider the use of adaptive control features such as dimmers, timers, and motion sensors when evaluating lighting plans for subdivisions and nonresidential developments.

Action(s): No action taken.

6. Topic: Comments Regarding Proposed Lighted Sign Regulations

Commenters recommended standards that require lighted signs to be turned off after business hours. It was also suggested that if internally lighted signs are allowed, they should be limited to Community Center Development Subdistricts (D-GN2). Clarification regarding whether commercial awning or canopy lighting is considered a light fixture or a sign was requested. Other commenters recommended that externally lighted signs should not exceed 2,700 K and proposed that Section 10.27(J)(2)(b)(1) be updated to include other road users, including bicyclists and pedestrians, in addition to the driver of any motor vehicle.

Commenter(s): Appalachian Mountain Club; Friends of Katahdin Woods and Waters; Maine Audubon; National Parks Conservation Association; Natural Resources Council of Maine

Response: The Commission agrees that internally illuminated signs could potentially impact scenic and dark sky resources, particularly in the more remote portions of the service area. These signs will be allowed by permit only and with consideration of surrounding uses and activities to ensure there are no undue adverse impacts. To help ensure no undue adverse impacts, the Commission agrees that internally illuminated signs should be turned off after business hours.

Limiting the use of these signs to the D-GN2 subdistrict, which encompasses a very small portion of the Commission's service area only in the Rangeley Region, would be unfair to the owners of authorized nonresidential development in other development subdistricts where such signage might be acceptable. It is also unreasonable for the Commission to change the D-GN2 Subdistrict, which was created and designated as part of a prospective zoning process, as a result of this rule revision and without receiving feedback from people in the region.

Generally, the Commission considers any commercial canopy or awning lighting mounted on a horizontal plane and directed downward, such as on the underside of the canopy, to be lighting. Any lighting on a vertical plane, such as a lighted panel around the canopy and facing outward, would generally be considered an internally illuminated sign.

The proposed standards would apply to the lights associated with illuminated signs, and so under the proposed rules the lights would be limited to 3,000 K and need to be turned off after business hours. In addition, the proposed standards require that externally illuminated sign light fixtures (e.g., fixtures directed at text so a sign may be visible/read at night) be fully shielded and downward directed, regardless of the lumens. Because of this, an additional requirement regarding CCT or business hours is not necessary for externally illuminated signs.

Regarding the addition of bicyclists and pedestrians to Section 10.27(J)(2)(b)(1), because the relative heights of cyclists, pedestrians, and drivers are similar, and the only situations where lighting might affect bicyclists and pedestrians but not motor vehicles would be certain trails or pedestrian-only commercial districts which would likely have special lighting considerations, the Commission believes that additional clarification is not warranted at this time.

Action(s): An additional standard has been added to Section 10.27(J)(2)(b) as follows:

(5) Internally illuminated signs must be turned off after business hours.

7. Topic: Comments on the Cumulative Impacts from Aggregate Lighting

Multiple commenters recommended that the rules address the cumulative impact from multiple light fixtures in close proximity.

Commenter(s): Appalachian Mountain Club; Dark Sky Maine; Friends of Katahdin Woods and Waters; Maine Audubon; National Parks Conservation Association; Natural Resources Council of Maine; Southern Maine Astronomers

Response: The proposed rules require a lighting plan for proposed subdivision and nonresidential development. One required component of the lighting plan is to identify total lumens for the project so consideration will be given to impacts from the cumulative effect of multiple lighting fixtures proposed for a project during the permit review process for a single site and on a case-by-case basis. Review criteria in other sections of the Commission's rules, such as Section 10.24(A)(1)(C), require the Commission to find that adequate provision has been made to ensure no undue adverse impacts on existing uses, scenic character, and natural resources. These criteria allow the Commission to limit total lumens if sensitive resources or uses may be impacted by proposed development.

Action(s): No action taken.

8. Topic: Comments Regarding Repairs, Upgrades, and Replacement of Existing Lighting

Two groups of commenters recommended that the proposed standards apply to the replacement of existing lighting. One group proposed the following edits to Section 10.25(F)(2)(a-b): “All new, updated, or replacement exterior lighting sources for residential, commercial, and industrial development...” Another group suggested that during repairs or upgrades, all fixtures must be made compliant if more than 25% of original fixtures are repaired or upgraded.

Commenter(s): Appalachian Mountain Club; Dark Sky Maine; Maine Audubon; Natural Resources Council of Maine; Southern Maine Astronomers

Response: The provisions of Chapter 10, Section 10.25 of the Commission's rules apply to development requiring a permit, so the new provisions will apply to any projects permitted after the effective date of the rulemaking.

The Commission recognizes that it would be beneficial to require all lighting that is replaced in the Commission's service area to comply with the most current standards. However, the current placement of lighting standards in the development standards section of Chapter 10 precludes the Commission from taking that step at this time. The Commission will monitor implementation of the new standards and violations identified and if needed, will explore moving the lighting standards to Section 10.27, Activity Standards. This change would result in a broader application of the standards but would require a more substantive rule change beyond the scope of the current rulemaking effort.

Regarding the second issue identified by commenters above, the Commission will not implement retroactive rule provisions because of the burden on property owners and the difficulty enforcing such provisions. The Commission does not currently require permits for light fixtures, so there is no way of knowing when property owners are updating their lighting. It is important to note that standards in effect at the time a project was permitted would still apply. For example, a project with

a lighting component that was permitted between April 1, 2004, and the effective date of the new rules must comply with the previous lighting standards.

Action(s): No action taken.

9. Topic: Comments Regarding Enforcement of Lighting Standards

One set of commenters recommended developing a specific compliance and enforcement response policy to address violations.

Commenter(s): Appalachian Mountain Club; Maine Audubon; Natural Resources Council of Maine

Response: The Commission acknowledges that the enforcement of the proposed lighting and lighting sign provisions will be primarily complaint-driven given the scope of the service area and staffing limitations. The recently updated [Compliance and Enforcement Response Policy](#) provides a flexible framework appropriate for enforcing the lighting standards. As with all other potential enforcement cases, the first step would be to try to resolve an issue with the property owner without a formal notice of violation. Should this communication fail to resolve the situation, a notice of violation would be issued, and steps would be taken pursuant to the Compliance and Enforcement Response Policy.

Action(s): No action taken.

10. Topic: Comments Regarding Recreation Supply Facilities

Two commenters recommended that Section 10.27(S)(3)(b)(4)(b) be updated to require exterior lighting not exceeding 2,700 K and fully shielded fixtures directed downward.

Commenter(s): Friends of Katahdin Woods and Waters; National Parks Conservation Association

Response: The Commission agrees that exterior lighting for Recreation Supply Facilities should comply with the proposed color and fully shielded standards. The current rules for these facilities include many of the current standards but exclude the exemptions. The Commission will simplify this section of the rule as proposed below.

Action(s): The following revision will be made to the proposed rules in Section 10.27(S)(3)(b)(4)(b):

- (4) Noise and Lighting.
 - (a) Noise. Facilities must meet the standards for noise included in Section 10.25,F,1.
 - (b) Lighting. Facilities must meet the standards for lighting included in Sections 10.25,F,2,a through e. All exterior lighting must be full cut off and designed, located, installed and directed in such a manner as to illuminate only the target area, to the extent practicable. Activities must not produce a strong, dazzling light or reflection of that light beyond lot lines onto neighboring properties, or onto any roadway so as to impair the vision of the driver of any vehicles upon that roadway or to create nuisance conditions. Additionally, all non-essential lighting must be turned off after business hours, leaving the minimum necessary for site security.

11. Topic: Comments Regarding Requiring LED Lighting

Two commenters recommended that the rules explicitly require exterior lighting for new construction in the Commission's service area to be LED light fixtures.

Commenter(s): Friends of Katahdin Woods and Waters; National Parks Conservation Association

Response: Lighting technology is constantly changing. The Commission strives to maintain as much flexibility as possible in its rules to accommodate these changes. Therefore, limiting lighting to a certain technology would likely result in a need to amend the rules within a few years to reflect new technological developments. To avoid this, the Commission will not limit new lighting to LED only at this time.

Action(s): No action taken.