



MEMORANDUM

Town of Nags Head

Planning & Development Department

To: Planning Board
From: Holly B. White, Principal Planner
Michael Zehner, Director of Planning & Development
Date: November 13, 2020
Subject: Review and discussion of Town Outdoor Lighting regulations

BACKGROUND

At their October 7, 2020 meeting, the Board of Commissioners requested that Staff conduct a study of the Town's outdoor lighting regulations, including as they pertain to signage, with consideration of best practices related to both technical aspects and aesthetics. Specifically, the Board of Commissioners are concerned that evolving and new lighting technologies have rendered our current regulations (now over 30 years old) obsolete, and result in increased potential for glare, light trespass onto adjacent properties, and more intense lighting visible at greater distances. The Board reiterated the Town's long-standing values for a dark night sky. Staff confirmed that the Board wished Staff to conduct this review with the input of the Planning Board and return conclusions and recommendations to the Board at a future meeting.

EXISTING LIGHTING ORDINANCE & RECOMMENDATIONS

The Town currently regulates outdoor lighting in [Article 10. Performance Standards, Part IV. Outdoor Lighting](#) with the general purpose of preserving the visual integrity of the nighttime environment. These standards apply to commercial development that requires a site plan approval, or the alteration of existing lighting on a commercial site. There are no specific standards that apply to single-family and duplex development, and the regulations specifically indicate that they are not intended to regulate single-family and duplex security lighting.

Current regulations do address light pollution along the shorelines including the ocean and sound waters, but not necessarily in an objective manner. These regulations are for aesthetic reasons, but also to limit disturbance to wildlife including sea turtle and shorebirds that nest and feed on the town's beaches. More information on the affect of light pollution on sea turtle nesting and solutions for addressing this issues is detailed in the Florida Fish and Wildlife Research Institute Technical Report [Understanding, Assessing, and Resolving Light-Pollution Problems on Sea Turtle Nesting Beaches](#).

The current regulations address [prohibited lighting](#), [general provisions for all commercial lighting](#), [lighting plan requirements](#), performance standards, and [specific lighting application standards](#) (i.e. parking lots, recreational facilities, signage, etc.). The regulations require lighting plans for commercial development in order to review fixture types, photometry, and overall lighting layout. The focus of the lighting plans is to limit

lighting levels by regulating foot-candles at their source and at property boundaries. Specific uses in [Article 7. Supplemental Regulations](#), also address lighting. There are certain situations where the regulations in Article 7 may be more restrictive than those lighting standards in Article 10. Part IV. Outdoor Lighting.

The regulations generally contained in the Outdoor Lighting section utilize and rely on fixtures types, location, and photometric readings (i.e. footcandles) to determine compliance with the standards. The Town may be able to better address glare and light trespass by considering one or more of the following options:

- Lighting Assessment:
 - Conduct a lighting assessment to determine areas within the Town where glare and light trespass may be a problem.
 - Assess and document problematic lighting that is inconstant with the overall goal of maintaining a dark night sky.
 - Utilize this information to inform development of future regulations.
- Update the Ordinance to:
 - Regulate lighting through lighting zones that are appropriate to specific areas of the town. Areas along the corridor and commercial areas would be regulated with more leniency than areas closer to ocean and estuarine shorelines that are more environmentally sensitive.
 - Specify appropriate regulations and measurements for:
 - a. Luminance - the intensity of light emitted from a surface per unit area in a given direction;
 - b. Lux - a unit that measures light illumination on a surface or area that is one meter from a uniform point source;
 - c. Light Trespass - the shining or spillage of direct light produced by a luminaire behind the boundaries of the parcel on which the luminaire is located; and
 - d. Glare - light emitted from a luminaire with an intensity great enough to produce annoyance, discomfort, or reduction in a viewer's ability to see.
 - Develop separate standards for new development; this will allow flexibility for existing development.
 - Utilize *best practices* when updating the ordinance; see best management practices outlined below.

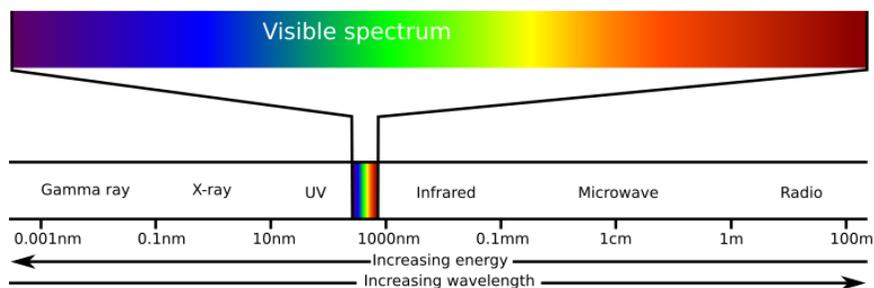
- Education:
 - Develop outreach and education that promotes desirable lighting, the Town's values for a dark night sky, and the negative side effects of lighting the ocean and estuarine shorelines.
 - Partner with [NEST](#) to develop/distribute educational materials.
 - Include lighting related education with other Town distributed property owner and visitor information. Publicize that impact of light trespass on the beach to sea turtle and shorebird breeding and feeding; encourage the installation of timers and that residents and visitors to turn off lights in upper floors of rental homes with direct view of the beach.

BEST PRACTICES

Most resources supportive of dark night sky or protective of sea turtle nesting recommend the following guidelines and best management practices:

- Keep It Low:
 - Be no brighter than necessary.
 - Reduce the wattage of problem lighting. For a given lamp type, reducing the wattage of the luminaire will reduce the amount of light emitted. When changing lamp types or fixture styles, the manufacturer's data on luminance (typically given in lumens) should be consulted.
 - Use lower pole-mounted luminaires or low-mounted luminaires (such as louvered, bollard-type fixtures or path-light fixtures) as a substitute for pole-mounted lighting. Low-mounted luminaries better focus light where it is most needed; the lower a light source is mounted, the smaller the area it will illuminate. In addition, lighting mounted lower will tend to have a greater degree of shielding from the beach by objects on the dune (vegetation, buildings, etc.).
 - Only keep lights on when needed.
 - Only light areas that need lighting.
- Keep it Shielded:
 - Replace unshielded fixtures with full-cutoff, fully shielded luminaires to focus light where it is most needed.
 - Replace higher-wattage multidirectional luminaries with lower-wattage directional luminaires.

- Recess luminaires into the underside of architectural features of the roof such as a beam, arch, ceiling, or vault, where available. Recessed sources will be more directional and, if directed downward, will be less visible.
- Minimize lighting from indoor sources onto the beach and estuarine shorelines by turning off lights in rooms not being used at night, tinting or applying window treatments to windows visible from the beach, and closing opaque curtains or blinds after dark.
- Keep it Long:
 - Monochromatic long-wavelength light sources such as amber or red LEDs that produce light at 560 nm or longer are less likely to impact sea turtles.
 - Minimize blue light emissions. Shorter-wavelength light, such as blue and purple, can penetrate more deeply into the water column.



In addition to those general guidelines, staff found the following information and resources helpful:

- Guidelines for Good Exterior Lighting Plans - Prepared by [The Dark Sky Society](#) (see attached)
- [Model Lighting Ordinance](#) - International Dark Sky Association
- [Lighting Ordinance - Town of Topsail Beach](#) (see attached)
- [Section 16G. Outdoor Lighting](#) - Town of Wellesley, MA
- [Understanding, Assessing, and Resolving Light-Pollution Problems on Sea Turtle Nesting Beaches](#) - Florida Fish and Wildlife Research Institute Technical Report

SIGNAGE

Staff will present additional information on options to address lighting associated with signage. However, Staff would suggest that consideration be given to the number and size of allowed signage and the manner in which signs are allowed to be lit. For example, while exposed neon tubing and the like are prohibited (except in limited instances), and the use of fluorescents is regulated, internally illuminated signage is generally allowed; depending on the number and size of signs, internally illuminated signs can appear to be excessively lit. Staff would recommend consideration of requirements, with limits, for external illumination of signage in some instances, the

requirement for reverse back-lit signage (aka halo lit signage), and/or a prohibition on the internal illumination of signs of a certain size.

POLICY CONSIDERATIONS

The [2017 Comprehensive Plan](#) addresses lighting in the land use section under site development characteristics (page 3-26). The Plan states that, “The town has held a longstanding commitment of being a dark sky community.” The land use section describes the desired characteristics of preferable development in Nags Head for the future. This section of the Plan not only addresses the physical characteristics of buildings but the broader context of community character. Included in this description (page 3-5), are the following references to lighting and signage:

“A visible and dark night sky maintained by lighting that is minimal and carefully designed. Signage that provides adequate communication but does not dominate the landscape.”

In addition, the following policies and actions support the review and update of the lighting ordinance as well as preservation of the dark night sky.

LU-16 Preserve the dark night sky through implementation and enforcement of quality lighting fixtures and codes, dark sky education, and citizen support.

LU-16a: Evaluate and modernize the lighting ordinance to reflect best practices for being a dark sky community.

LU-16b: Research and consider applying to the IDA for the Dark Sky designation.

LU-16c: Explore the feasibility of minimum regulations for residential properties that limit nuisance lighting to adjacent properties or town rights-of-way associated with glare or light trespass.

LU-16d: Explore efficient low-level lighting along multi-use pathways and at crosswalks to promote safety while preserving the night sky. The town should resist proposals to provide overhead lighting along roadway corridors.

LU-17 Maintain current regulations which prohibit lighting of the ocean beach or estuarine waters to protect marine species and limit unnecessary intrusions into natural areas.

STAFF RECOMMENDATION

Staff intends to review this information and provide additional detail at the Board’s meeting. Staff would recommend that this discussion continue to the Board’s December meeting to allow for further feedback and direction from the Board.

Attachments:

1. Guidelines for Good Exterior Lighting Plans - Prepared by [The Dark Sky Society](#)
2. Lighting Ordinance- Town of Topsail Beach (see attached)