

I. PREAMBLE - Ordinance Text

The purpose of this Ordinance is to provide regulations for outdoor lighting that will:

- a. Permit **the reasonable** uses of outdoor lighting **that does not exceed the minimum levels specified in IES recommended practices** for nighttime safety, utility, security, productivity, enjoyment, and commerce.
- b. Minimize adverse offsite impacts **of lighting such as including** light trespass, and obtrusive light.
- c. Curtail light pollution, **reduce sky glow** and improve the nighttime environment for astronomy.
- d. Help protect the natural environment from the adverse effects of night lighting from gas or electric sources.
- e. Conserve energy and resources to the greatest extent possible.

Response to 25: ACCEPTED IN PART

We agree that whether lighting provides “security” can be debated - does lighting help the user or help the perpetrator? “Security” is deleted. Subsection “c” will be changed to include sky glow. The purpose of the MLO does include the minimizing of the adverse effects of offsite impacts. The word “lighting” has been added for clarity. Suggested word changes to subsection d and e do not offer a substantial improvement over the draft language, and therefore are NOT ACCEPTED.

53 - The term “reasonable” can mean different things to different people. To our friends at the IDA, reasonable almost always means less. But to many of our customers, reasonable often times means more. Therefore, I suggest the term not be used at all.

“Permit reasonable uses the use of outdoor lighting for night-time safety, utility, security, productivity, enjoyment and commerce that meet IES recommended design practices.”

18 - Permit reasonable uses the use of outdoor lighting for night-time safety, utility, security, productivity, enjoyment and commerce that meet the IES recommended design practices.

39 - MLO does not specify how to provide “night-time safety, utility, security, productivity, enjoyment and commerce”. The MLO does not refer to RP-20 and RP-8, which recommend practices for providing “night-time safety, utility, security, productivity, enjoyment and commerce”.

Response to 53, 18 and 39: ACCEPTED IN PART

The word “reasonable” can sometimes be ambiguous. For improved clarity, the word “reasonable” is deleted. Reference is also added to not exceed the minimum lighting levels specified in IES recommended practices.

New Wording

Permit the use of outdoor lighting that does not exceed the minimum levels recommended by IES recommended practices for night-time safety, utility, security, productivity, enjoyment and commerce.

25 - Replace “a” through “e” of Preamble with the following “a” through “d”:

- a. Permit reasonable uses of outdoor lighting for nighttime safety, utility, productivity, enjoyment, and commerce.
- b. Curtail light pollution, including light trespass, glare, and sky glow.
- c. Reduce adverse effects of artificial night lighting on the natural environment and all forms of life.
- d. Conserve energy and resources.

REASON: Recommend deleting “security” from “a” because outdoor lighting may or may not improve “security.”

More broadly, the existing Preamble suffers from failure to use key terms correctly; please see our comments on the Definitions section. Most notably, “light pollution” has been used here in the obsolete, narrow sense as a synonym for “sky glow.” We recommend instead the following definition, a slightly refined version of the official one on the IDA website: “Any adverse effect of artificial light including, but not limited to, glare, light trespass, skyglow, energy waste, compromised safety and security, and impacts on the nocturnal environment.” This definition and others in our Definitions comments are designed to work together in the language proposed for “a” through “d” above.

I. PREAMBLE - User's Guide

In general, the preamble is part of the ordinance but is typically not part of the code. It establishes the reasons why the municipality is undertaking these regulations.

Local governments may add other purposes to the Preamble including established local government environmental or energy goals that support the model lighting ordinance. **The environmental impacts of outdoor lighting fall into two categories: carbon footprint (energy used in the life of a lighting product) and obtrusive light.**

CARBON FOOTPRINT	OBTRUSIVE LIGHT
Cost & Impact of Mining the Materials Used	Impact on Humans
Energy Used in Production	Impact on the Environment
Energy Used during Product Life	
Disposal/Recycle Costs	

39 - the MLO under I.e. does not specify the ways how to "Conserve energy and resources to the greatest extent possible". At this point the MLO should address the environmental impact of outdoor lighting that includes carbon footprint and obtrusive light (as described in Figure 1 below.)

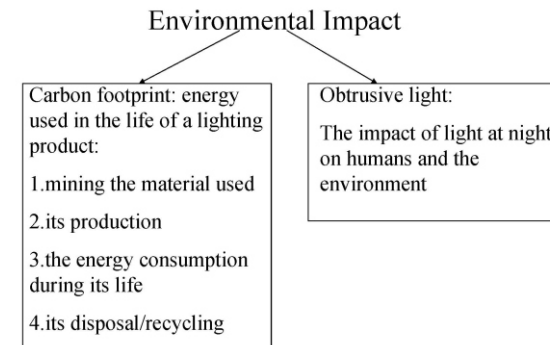


Fig.1 The environmental impact of outdoor lighting

As shown in Table 1, there are two major tasks for reducing the environmental impact of outdoor lighting. They are reducing the carbon footprint and reducing obtrusive lighting. However these two concepts are challenging to achieve simultaneously because they contradict one another.

Table 1 Reducing carbon footprint and obtrusive light tasks

Reducing carbon footprint	Reducing obtrusive light
1. Increase luminaire efficacy by reducing cut off category and shielding	1. Using flat glass and shields – reduce luminaire efficacy
2. Increase luminaire unit power: a) increase lm/W efficiency b) reduce # of luminaires and poles	2. Reduce unit power, lower poles: a) reduce lm/W efficiency b) more luminaires and poles needed

RESPONSE to 39: Accepted in Part
Including the Figure 1 diagram showing Environmental Impact would contribute to a better User Guide, space permitting.

Reducing the carbon footprint and reducing obtrusive light are not necessarily in contradiction of each other. Streetlight inventory can be reviewed and unnecessary streetlights removed from service. Street and Area lighting can use programmable photocells to extinguish light when it is no longer needed. Streetlights and Area lighting using LED technology can have dimming capabilities. Dimming streetlights, removing streetlights from service where they are not warranted, and turning off lights during night hours when lighting is not needed for safety each offer a substantial reduction in the carbon footprint AND at the same time a reduction in potentially obtrusive light sources. The conclusion that reducing the carbon footprint and reducing obtrusive light are goals that always contradict one another is rejected.