

SECTION 1. TITLE

This local law shall be known and cited as "Preventing Light Pollution Law of the Town of _____" being Local Law number __ of 2019. It may be known as the "Dark Sky Law of the Town of _____."

SECTION 2. AUTHORITY

This local law is adopted pursuant to the authority and power granted by Articles 2 and 3 of the New York State Municipal Home Rule Law, by Article 2 of the New York State Statute of Local Governments, and by Article 16 of the New York State Town Law.

(Note that this remainder of the text should be tailored to each community. Options are shown in italics or Highlights.)

SECTION 3. ZONING AMENDMENT

The Zoning Law of the Town of _____, entitled "_____" (Local Law No. ____ of the year ____) is hereby amended to add the dark sky regulations as a new [Section ____ or Article ____] in said Zoning Law as follows:

1. PURPOSE

In addition to the general purposes set forth in Article __, Section __ of the Town's Zoning Law, the specific purposes of this Section of the Town of ____ Zoning (*Chapter, Local Law, Ordinance*) are to:

- A. Minimize adverse offsite impacts of lighting such as light trespass, and obtrusive light.
- B. Curtail light pollution, reduce skyglow and improve the nighttime environment for views of the night sky.
- C. Limit energy consumption on wasted outdoor lighting to the greatest extent possible.
- D. Limit human exposures of bright lights at night to prevent interference with natural circadian rhythms (i.e. 24-hour day/night cycle).
- E. Limit harm to wildlife exposed to light pollution.
- F. Promote methods that can assist in avoiding and minimizing compatibility issues with Fort Drum and Wheeler-Sack Army Airfield (WSAAF) operations, to encourage cooperation in land use planning between Fort Drum and the Town of _____ so that future community growth and development *in _____* are compatible with both Town goals and the training and operational missions at Fort Drum, and to sustain the environmental and economic vitality of the region while protecting public health, safety, and welfare.

- G. Limit adverse impacts on the military’s ability to conduct nighttime training at Fort Drum and the Wheeler-Sack Army Airfield (WSAAF).

The guiding objectives to accomplish these stated purposes are to promote outdoor lighting that is:

- Only on when needed.
- Only lighting the area that needs to be lighted.
- No brighter than necessary.
- Designed to minimize blue light emissions.
- Fully shielded (pointing downward).

2. DEFINITION OF TERMS

(Not all these terms may need to be included)

Accent Lighting: Lighting used to emphasize or draw attention to a special object or building.

Building or Monument Lighting: The illumination of the exterior of a building, statue, or monument.

Cut Off Angle, of a Luminaire: The angle, measured up from the nadir (i.e. straight down), between the vertical axis and the first line of sight at which the bare source (the bulb or lamp) is not visible.

Dimmer: Dimmers can reduce the input power requirements and the rated lumen output levels of in- candescent and fluorescent lights. Fluorescent lights need special dimming ballasts. Dimming incandescent lights reduces their efficiency.

Fixture: The assembly that holds the lamp in a lighting system. It includes the elements designed to give light output control, such as a reflector (mirror) or refractor (lens), the ballast, housing, and the attachment parts.

Floodlight: A fixture designed to “flood” a well-defined area with light.

Fully Shielded Fixture: A fixture that allows no emission above a horizontal plane through the fixture.

Glare: Excessive brightness that reduces visibility and causes visual discomfort. A light within the field of vision that is brighter than the brightness to which the eyes are adapted.

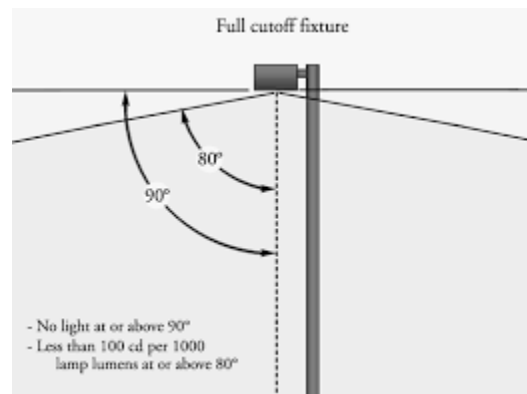
Hardscape: The permanent hard improvement to the site including parking lots, drives, entrances, curbs, ramps, stairs, steps, medians, walkways. It also includes non-vegetated landscaping that is 10 feet or less in width. Materials in a hardscape may include concrete, asphalt, stone, gravel, etc.

High-Pressure Sodium (HPS) Lamp: HID lamp where radiation is produced from sodium vapor at relatively high partial pressures (100 torr). HPS is essentially a “point source”.

Illuminating Engineering Society of North America (IES or IESNA): The professional society of lighting engineers, including those from manufacturing companies, and others professionally involved in lighting.

International Dark-Sky Association (IDA, Inc.): A non-profit organization whose goals are to build awareness of the value of dark skies, and of the need for quality outdoor lighting.

LED: Light emitting diode.



Light Pollution: Any adverse effect of artificial light.

Light Trespass: Unwanted spillage of light onto adjacent areas and may affect sensitive receptors particularly residential properties and ecological sites. Also known as light spill.

Lighting Controls: Devices used for either turning lights on and off or for dimming.

Low-Pressure Sodium (LPS) lamp: A lamp where the light is produced by radiation from sodium vapor at a relatively low partial pressure (about 0.001 torr). It is monochromatic light.

Lumen: The unit of measure used to quantify the amount of light produced by a lamp or emitted from a luminaire (as distinct from “watt,” a measure of power consumption).

Luminaire: A complete lighting unit that usually includes the fixture, ballasts, and lamps.

Photometric Plan: An analysis that simulates a proposed lighting design. Such a plan helps determine if a proposed project will meet the specifications required for the project and generally includes but is not limited to all site and building lighting fixtures and signage being proposed as well as resulting footcandles from those lighting fixtures at all parcel boundaries. The photometrics allow lighting designers and architects to know if light levels are sufficient and reviewing boards to determine if lighting levels meet requirements.

Shielding: A material that blocks the transmission of light upwards or outwards from a luminaire.

Skyglow: The brightening of the night sky over inhabited areas.

Spotlight: A fixture designed to light only a small, well-defined area.

3. APPLICABILITY

(Each adopting jurisdiction should decide when this new regulation is required, when or if repair or remodeling triggers compliance, and if the new law will be retroactive to existing development. They should also decide if it is applicable in all zoning districts or some districts. Some options to address these include:)

(If Town wants this applicable only to new uses and to provide a general direction towards better lighting):

The jurisdiction of this local law shall extend over all lands and all zoning districts (*in the following zoning districts _____*) within the Town of _____ for all new commercial (*and residential structures*) and uses, lighting for signs and street lighting. It shall not apply to any commercial (*or residential*) luminaires already in use at the time of adoption of this local law.

OR

(If Town wants this applicable to both new uses and existing uses):

Except as described below, all commercial and residential (*commercial*) outdoor lighting in all zoning districts in the Town of _____ (*or in the following zoning districts _____ in the Town of _____*) installed after the date of effect of this local law shall comply with these requirements. This includes, but is not limited to, new lighting, lighting for signs, street lighting of lighting within public rights-of-ways, replacement lighting, or any other lighting whether attached to structures, poles, the ground, or any other location. Exceptions are:

- A. Lighting for public monuments and statuary.
- B. Searchlights used by emergency personnel.
- C. Repairs to existing luminaires not exceeding 25% of total installed luminaires.
- D. Temporary lighting for theatrical, television, performance areas and construction sites;
- E. Underwater lighting in swimming pools and other water features.

- F. Temporary lighting and seasonal lighting provided that individual lamps are less than 10 watts and 70 lumens.
- G. Lighting that is only used under emergency conditions.
- H. Low voltage landscape lighting controlled by an automatic device that is set to turn the lights off at one hour after the site is closed to the public or at a time established by the authority.

4. PROHIBITED LIGHTING

- A. The following lighting systems are prohibited from being installed or used in any location in the Town of _____:
 - 1. Temporary lighting in which any single luminaire exceeds 20,000 initial luminaire lumens or the total lighting load exceeds 160,000 lumens.
 - 2. Aerial lasers.
 - 3. White strobe lights that illuminate structures such as but not including smokestacks, chimneys, and telecommunication towers.

5. DARK SKY DEVELOPMENT STANDARDS FOR NEW STRUCTURES AND USES

- A. For all new non-residential buildings and multi-family structures having 6 dwelling units or more.
 - 1. Any site plan review or special use application shall also include information on the planned lighting of the site including number of luminaires, the number of lamps in each luminaire, the lumens for each luminaire, and the photometric data for each luminaire. This information is typically available from the luminaire manufacturer. Application information shall also include the total square footage of hardscape planned on the site.
 - 2. The Planning Board shall require that a lighting plan be submitted for all non-residential uses requiring a special use (*conditional use*) or site plan approval. Such lighting plan shall follow the analysis methods established by the Illuminating Engineering Society (IES) and International Dark-Sky Association (IDA).
 - 3. All luminaires associated with non-residential buildings including those for signs, billboards, parking lots, accent lighting, safety lighting, and building lighting shall use fully shielded luminaires that directs light down and that have 0% light emission above the 90° plane for street or area lighting.
 - 4. The Planning Board shall require that controls be provided that automatically extinguish all outdoor lighting when sufficient daylight is available using a control device or system such as a photoelectric switch, astronomic time switch or equivalent functions from a programmable lighting controller, dimmer, building automation system or lighting energy management system, all with battery or similar backup power or device.
 - 5. The Planning Board shall establish specific time(s) after which total outdoor lighting lumens shall be reduced by at least 30% or extinguished. Exceptions to these lighting reductions include:
 - a. Code required lighting for steps, stairs, walkways, and building entrances.

- b. Motion activated lighting.
 - c. Lighting governed by a special use permit in which times of operation are specifically identified or for businesses that operate on a 24-hour basis.
 - d. When the outdoor lighting on a site consists of only one luminaire.
6. The Illuminating Engineering Society (IES) and International Dark-Sky Association (IDA) have developed standards for the total illumination levels for non-residential uses based on the total 'hardscape' area on a site. The Planning Board may (*shall*) use the following as a guideline (*standard*) for acceptable light levels for non-commercial uses:
- a. For parks, preserves, and undeveloped rural areas - .5 lumens per square foot of hardscape.
 - b. For rural residential areas and low-density residential areas – 1.25 lumens per square foot of hardscape.
 - c. For business zones, downtown areas, commercial mixed-use areas, and similar - 2.5 lumens per square foot of hardscape.
 - d. For manufacturing zones and heavy industrial locations – 5.0 lumens per square foot of hardscape.
7. Certain uses may require additional lighting. Lighting not complying with the technical requirements of this section but which is consistent with the purposes of this section may be installed for complex sites or uses or special uses including, but not limited to, the following applications:
- a. Sports facilities, including but not limited to rinks, open courts, fields, and stadiums. Lighting shall be accomplished only through the use of luminaires conforming to IES full cutoff criteria. The Planning Board may require that mounting heights for recreational lighting be reduced to mitigate glare.
 - b. Temporary construction lighting.
 - c. Ornamental and architectural lighting of bridges, public monuments, statuary and public buildings.
 - d. Correctional facilities.

Prior to final approval of projects such as these, the Planning Board shall ensure that the proposed lighting installation for the project has included every reasonable effort to mitigate the effects of light on the environment, and surrounding properties, including lighting controls to reduce lighting to the maximum extent feasible.

8. Vegetation screens shall not be employed to serve as the primary means for controlling glare. Rather, glare control shall be achieved primarily through the use of such means as cutoff fixtures, shields and baffles, and appropriate application of fixture mounting height, wattage, aiming angle and fixture placement.
9. Under-canopy lighting for structures such as gas/service stations, hotel/theater marquees, and drive-up facilities shall use flat-lens full-cutoff luminaires aimed straight down and shielded.
10. In addition to the above standards and guidelines, the Planning Board may require additional secondary mitigation efforts to further reduce light pollution and glare including, but not limited to vegetated screening, fences, vegetated berms, lowering luminaire pole height, or alternate locations for luminaires.

- B. For all new single-family homes, two-family homes, townhouses, and multi-family residential structures of 6 dwelling units or less. *(If the Town does not want to address lighting at residential structures this would be removed.)*
 - 1. All outdoor luminaires shall be fully shielded and shall not exceed 1,260 total lumen output. All lighting shall be aimed away from adjacent properties to prevent direct glare and not exceeding the total allowed lumen output.
 - 2. Landscape Lighting is permitted but should be carefully installed, shall meet the total lumen output, and not to be aimed onto adjacent properties.
 - 3. Lighting controlled by Vacancy (Motion) Sensor reduces light pollution and light trespass and is encouraged to be used in residential settings.

C. LED Digital Lighting Standards

- 1. Lamps – LED light sources shall have a color temperature that does not exceed 3000K for commercial and industrial districts, and not exceeding 2700K in residential districts.
- 2. LED electronic/digital billboard and sign lighting shall only be permitted in commercial and industrial districts, shall not be allowed to operate between 11:00 p.m. and dawn when located where the sign face or its light output is visible from a residential district or use. Except for time and weather signs, a digital message shall not be permitted to change more than once each 60 seconds. From 30 minutes after sunset to 30 minutes before sunrise, the LED output shall be automatically reduced to a level that does not exceed 100 nits. Where located in an area with existing high-ambient light levels but not visible from a residential use, a sign-face brightness not exceeding 200 nits may be permitted. The sign or billboard nighttime light output shall be capable of being further dimmed if municipality so requires when the lighting is judged to create a nuisance or hazard.

6. DARK SKY DEVELOPMENT STANDARDS FOR EXISTING STRUCTURES AND USES

(This section, or desired pieces of this section would be added in if the Town desires to address lighting at existing uses and structures and has chosen the second option of (3), above. Generally, new regulations for lighting at existing uses and structures to bring them into compliance can be phased in through amortization, changes of uses, and additions/changes to properties. Some communities do not want to address this. This could also be applied only to commercial existing uses, and not address existing residential uses. The Town will need to decide first if it wants to address existing uses and how. If not, this section 6 would be removed.)

A. Lighting installed prior to the effective date of this law shall comply with the following:

- 1. Amortization. On or before [amortization date of months or years to be decided], all outdoor lighting shall comply with this law.
- 2. Change of Use. Whenever there is a new use on a property (a zoning or variance change, for example) or the use on the property is changed, all outdoor lighting on the property shall be brought into compliance with the standards and requirements of this law before the new or changed use commences.

3. Additions or Alterations.
 - a. Major additions. If a major addition occurs on a property, lighting for the entire property shall comply with the requirements of this Code. For purposes of this section, the following are major additions:
 1. Additions of 25 percent or more in terms of additional dwelling units, gross floor area, seating capacity, or parking spaces, either with a single addition or with cumulative additions after the effective date of this law.
 2. Single or cumulative additions, modification or replacement of 25 percent or more of installed outdoor lighting luminaires existing as of the effective date of this law.
 - b. Minor Modifications, Additions, or New Lighting Fixtures for Non-residential and Multiple Dwellings. For non-residential and multi-family dwellings of 6 units or more, all additions, modifications, or replacement of more than 25 percent of outdoor lighting fixtures existing as of the effective date of this law shall require the submission of a complete inventory and site plan detailing all existing and any proposed new outdoor lighting. Any new lighting shall meet the requirements of this law.
4. Resumption of Use after Abandonment. If a property with non-conforming lighting is abandoned for a period of six months or more, then all outdoor lighting shall be brought into compliance with this law before any further use of the property occurs.
7. Street Lighting in New Subdivisions and Developments.

Whenever the Town of _____ approves construction of a new local street as part of a residential subdivision or commercial development, the Planning Board shall require the applicant prepare a Master Lighting Plan for that street(s) based on the American Association of State Highway and Transportation Officials (AASHTO) Roadway Lighting Design Guide GL-6, October 2005, Chapter 2.

SECTION 4. SEPARABILITY

Each separate provision of this Local Law shall be deemed independent of all other provisions herein, and if provisions shall be deemed or declared invalid, all other provision hereof shall remain valid and enforceable.

SECTION 5. EFFECTIVE DATE

This Local Law shall take effect immediately upon filing with the New York State Secretary of State.