

**OUTDOOR LIGHTING ORDINANCE**  
**PUBLIC HEARING DRAFT 10/3/06 (REVISED 12/15/06)**

**Purpose.**

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

1. Minimize problems associated with improperly designed and installed outdoor lighting, including glare, light trespass, and sky glow, by limiting outdoor lighting that is misdirected or excessive;
2. Conserve energy and resources to the greatest extent possible;
3. Decrease light pollution and curtail and reverse the degradation of the nighttime visual environment and the night sky;
4. Promote and protect the general health, safety, and welfare and security of the public in the Charter Township of Meridian while not unreasonably interfering with the use and enjoyment of property within the Township.

**Definitions.**

*Barn Doors:* Adjustable doors that are attached to the luminaire to shape the light beam and add additional shielding.

*Façade Lighting:* Illuminating the exterior face of buildings, monuments, statues, and other structures.

*Fixture:* The assembly that holds a lamp and may include an assembly housing a mounting bracket or pole socket, a lamp holder, a ballast, a reflector or mirror, and a refractor or lens.

*Flood or spotlight:* Any light fixture or lamp that incorporates a reflector or a refractor to concentrate the light output into a directed beam in a particular direction. For purposes of this article, floodlights and spot-lights are considered luminaires.

*Footcandle:* A measure of light falling upon a given surface. One foot-candle is equal to one lumen per square foot. For purposes of this article footcandles shall be measured at approximately six feet above grade.

*Full Cut-off:* See "Sharp Cut-off".

*Fully shielded:* Outdoor lighting fixtures manufactured and installed so that all light emitted by the fixture, either directly from the lamp or a diffusing element, or indirectly by reflection or refraction from any part of the luminaire (excepting only incidental reflections from supporting brackets or arms) is projected below the horizontal plane, i.e. a shoe-box or can-style fixture. Any structural part of the light fixture providing this shielding must be permanently affixed (see Exhibit 1).

*Glare:* Light that causes visual discomfort or disability, or a loss of visual performance because of excessive luminance.

*Glare, disability:* Stray light with an intensity great enough to reduce a viewer's ability to see or identify objects, and in extreme cases causing momentary blindness.

*Grandfathered or Grandfather Clause:* An exception that allows an old rule to continue to apply to some existing situations, when a new rule will apply to all future situations.

*House Shield:* An extension of a luminaire that is attached to one or two sides for the entire width of the luminaire. Usually extends down from the luminaire far enough to provide additional shielding of the light source.

*Illuminance:* The amount of light falling on any point of a surface measured in footcandles.

*Iso-illuminance curve:* A line plotted on a set of coordinates to show all points on a surface where equal illuminances occur, also known as an iso-footcandle line or iso-diagram.

*IESNA:* Illuminating Engineering Society of North America (IES or IESNA). The professional society of lighting engineers.

*Lamp:* The component of a luminaire that produces the actual light. Commonly referred to as a “bulb”.

*Landscape lighting;* Luminaires intended solely for lighting landscape material.

*Light pollution:* General sky glow caused by the scattering of artificial light in the atmosphere.

*Light trespass:* The shining of light produced by a luminaire beyond the boundaries of the property on which the luminaire is located.

*Lighting plan:* A plan used for an approval process indicating all site improvements and the number, location, type, and design of all luminaires and the manufacturer's data on the luminaire.

*Lumen:* A measure of light energy generated by a light source. For purposes of this article, the lumen-output values shall be the initial lumen output rating of a lamp. For example a 100 watt incandescent lamp emits approximately 1690 initial lumens. A 100 watt Metal halide lamp emits approximately 9000 initial lumens.

*Luminaire:* A complete lighting system consisting of a lamp or lamps together, with the parts, fixtures, and wiring designed to distribute the light, to position and protect the lamps, and to connect the lamps to the power supply. May also be referred to as a light “fixture.”

*Maintenance of existing luminaires:* Repair of existing luminaire limited to lamps, ballast, broken lens or globe, broken or damaged internal parts, and pertaining to electrical connections.

*Nonconforming luminaires:* Luminaires that do not conform to this article and were in place prior to the effective date of this article.

*Outdoor lighting:* The night-time illumination of an outside area or object by any man-made device located outdoors that produces light by any means.

*Outdoor recreational facility:* An area designed for active recreation, whether publicly or privately owned, including but not limited to parks, baseball diamonds, soccer, football fields, golf courses, tennis courts and swimming pools.

*Photometric report:* A plan prepared by an electrical engineer or other approved lighting designer showing the locations of all luminaires on the subject site by means of either a numerical grid or iso-illuminance curve pattern of lighting levels in footcandles that the luminaires produce on the ground.

*Sharp Cut-off:* (Also known as “full cut-off). A “fully shielded” luminaire that has additional shielding that limits the amount of light to only 10% within the region 20 degrees below the horizontal plane. 90% of the light is distributed between 90 degrees and 20 degrees below the horizontal plane.

*Shielding:* Devices or techniques that are used as part of a luminaire or lamp to limit glare, light trespass and light pollution.

*Sky glow:* The halo effect given-off by outdoor lighting that is not shielded or from reflection off bright surfaces, including snow cover and which brightens the night sky over the affected area.

## **PART I: GENERAL REQUIREMENTS:**

### **Applicability**

All public and private outdoor lighting installed in the Charter Township of Meridian, including but not limited to, residential, non-residential, commercial, industrial, office, and mixed use planned unit developments, shall be in conformance with the requirements established under this article. See Part III for existing outdoor lighting installed prior to the date this ordinance takes effect.

### **Grandfathered Nonconforming Outdoor Lighting.**

(a) Except as otherwise provided in Part II or Part III of this article, all outdoor lighting existing prior to the effective date of this article are grandfathered and may remain in effect.

### **Exemptions.**

The outdoor lighting listed in (a) through (c) below are exempt from the regulations of this article:

- (a) Emergency lighting needed by police or fire departments, or other emergency services;
- (b) Hazard warning luminaires required by and conforming to the standards of federal, state, or local regulatory agencies;
- (c) Lighting exempt by federal or state laws, rules and regulations;

The outdoor lighting listed in (a) through (h) below are prohibited from causing direct light or glare towards residential structures or any adjacent or nearby properties and are exempt from all other regulations of this article. In such case(s) of direct light or glare, the luminaire(s) shall be redirected, shielded, or its light output controlled in such a manner, which eliminates the glare condition.

- (a) Window displays;
- (b) Decorative holiday lighting; (Must be off between midnight and 6:00 a.m.)
- (c) Publicly-owned traffic signs or emergency signs;
- (d) Signs for historic landmarks, where signage is using historic lighting technology;
- (e) Temporary lighting other than security lighting at construction projects;
- (f) Interior lighting;
- (g) Underwater pool lights;
- (h) Porch and garage lighting on single and two family residences.

## **Prohibited Outdoor Lighting.**

The following luminaires shall be prohibited:

- (a) Laser source light(s). The uses of laser light sources or similar high-intensity lighting for outdoor advertising or entertainment.
- (b) Searchlights. The operation of searchlights for advertising and entertainment purposes. This shall not include searchlights used for emergency purposes.
- (c) Overhead electrical feeds. Overhead electrical feeds to luminaires, such as but not limited to parking lot lighting. [Temporary overhead electrical feeds for lighting construction sites is permitted. \(For Part II applications or if specifically addressed in Part III\).](#)
- (d) Mercury-Vapor/Quartz lights. [\(For Part II applications or if specifically addressed in Part III\).](#)

## **Required Lighting Plans.**

- (a) At any time a special use permit and/or site plan review approval is required from the Township, the applicant shall submit in conjunction with the site plan, required in the Township's Zoning Ordinance, a lighting plan, which identifies all existing and proposed outdoor lighting on the site, the design and height of all luminaires, initial lumen output for each luminaire, total lumen value for the site expressed in lumens per acre [of area to be illuminated](#), an iso-illuminance curve pattern photometric report showing footcandle intensity throughout the subject site, and specification sheets for all outdoor light fixtures to the designated official to determine whether the proposed lighting will comply with this article.
- (b) At any time a building permit approval is required from the Township, the applicant shall submit sufficient information regarding existing and proposed outdoor lighting on the site, luminaire locations, and the light intensity planned for each luminaire, as expressed in initial lumen output, to enable the designated official to determine whether the proposed lighting will comply with this article. [A photometric plan may be required if submitted information is determined by a township code official to be inadequate.](#)
- (c) Prior to the installation of any new outdoor light fixture or modification of any existing outdoor light fixture required to be brought into compliance, the applicant shall submit sufficient information regarding the additional proposed outdoor lighting, luminaire locations, and the light intensity planned for each luminaire to enable the designated official to determine whether the proposed lighting will comply with this article. [A photometric plan may be required if submitted information is determined by a township code official to be inadequate.](#)
- (d) [For projects requiring site plan approval or a building/electrical permit, upon completion of the installation or modification of any outdoor light fixture\(s\) as part of an approved lighting plan, and/or prior to the issuance of a Certificate of Occupancy when required, a registered engineer or architect shall verify in writing to the Township Director of Community Planning and Development or designated official that all outdoor lighting was installed in accordance with this article.](#)

(e) The required plan, descriptions and data required above shall be sufficiently complete to enable the examiner to readily determine whether compliance with the requirements of this article will be secured.

**Waiver.**

(a) Any individual may submit a written request to the Township Director of Community Planning and Development or designated official for a waiver from these requirements. The request shall contain the following information:

1. Proposed or existing use of luminaires.
2. Type of lamp, including manufacturer's part number.
3. Type of light fixture, including manufacturer's model number and specification sheets indicating photometric distribution data stated in iso-foot-candle diagrams.
4. Initial lumens of lamps.
5. Proposed or existing location of luminaires.
6. Contact information including name, affiliation (if applicable), address and telephone number.
7. Reason for waiver request.

(b) The Township Director of Community Planning and Development or other designated official may waive a provision of this article only after determining that unique conditions exist where a waiver would not adversely impact neighboring properties and that there is a compelling safety interest that can not be addressed by any other method proscribed by this article, and is otherwise satisfactory and complies with the intent of this article.

(c) The Township Director of Community Planning and Development or other designated official shall ensure that consideration has been given by the applicant to minimizing glare, light pollution, and light trespass.

**Enforcement.**

(a) Any commercial developer or residential area developer, lighting engineer, lighting designer or consultant, lighting installer, lighting utility company found in violation of this article, or contributing to a violation of this article shall be ordered to cease further lighting development/installations on the project with lighting at issue, until the lighting violations are brought into compliance with this article.

(b) In addition to the other enforcement methods provided by this article, Township building inspectors and code enforcement officers are hereby designated as authorized township officials to issue municipal civil infraction citations or municipal civil infraction violation notices for violations of this article.

## **Penalties.**

A person who violates any provision of this article is responsible for a municipal civil infraction, subject to payment of a civil fine of \$75.00, plus costs including all direct and indirect expenses incurred by the Township in connection with the municipal civil infraction as provided in section 1-8 of the Township Code of Ordinances. However, in no case shall costs of less than \$9.00 or more than \$500.00 be ordered. Repeat offenses under this section shall be subject to increased fines as provided by section 1-8 of this Code. As to violations of this article that are continuous with respect to time, each day that the violation continues is a separate offense.

## **Appeal.**

Any person aggrieved by an order, requirement, decision or determination of a township official as it relates to this article, may appeal to the township board in accordance with the following procedure:

(a) *Notice of appeal.* A written statement containing the specific reason for the appeal must be filed with the township clerk within ten days of the date of the decision sought to be appealed.

(b) *Hearing.* The township board shall hold a hearing on the appeal, which shall be open to public comment and shall include an opportunity for the appealing party to present their appeal.

(c) *Notice of hearing.* Notice of the time and place for consideration of an appeal shall be placed in a newspaper of general circulation in the township not less than five days prior to the date of the hearing. A notice shall also be sent by mail or personal delivery to the parties making the request. All notices shall be sent to addresses listed on the most recent assessment roll.

(d) *Decision.* The township board shall issue its decision on the appeal within a reasonable time. In its determination of the appeal, the township board may take, but is not limited to, any of the following actions:

1. Affirm the decision of the township official with or without modification and with or without such conditions as the board deems necessary or appropriate to further the intent and purposes of this article;
2. Reverse the decision of the township official and state its reasons for reversal;
3. Make any other decision, determination, order, or requirement that the township official could have made with respect to the subject matter of the appeal.

(e) *Notice of decision.* The township clerk shall notify the parties making the request in writing of the township board's decision.

## **PART II: NEW CONSTRUCTION AND RENOVATION OF OUTDOOR LIGHTING:**

### **General Standards.**

The following applies to all outdoor luminaires unless otherwise stated in this article.

- (a) Luminaires with initial lumens between 1000 and 3500 shall be fully shielded so that direct light is not emitted at angles above the horizontal plane of the lowest direct-light emitting part of the luminaire (see Exhibit 1). Luminaires with initial lumens of more than 3500 shall be the sharp cut-off or full cut-off type.
- (b) Outdoor lighting regulated by this article shall incorporate shielding features such as, but not limited to baffles, louvers, caps, shrouds, barn doors, house shields, or hoods to prevent direct glare, light trespass, and sky glow.
- (c) Luminaires shall be designed and located to direct light away from adjoining and nearby properties. A maximum of one (1) foot-candle at property lines.
- (d) Floodlights and spotlights shall be designed, shielded, installed and maintained in a manner that directs the light downward and away from adjacent properties and streets unless controlled by a motion sensor with a maximum of 5 minutes “on” time after no motion is detected.
- (e) Floodlights and spotlights mounted on a pole or on a building must meet all the requirements of this article.
- (f) Whenever practicable, outdoor lighting systems shall include timers, motion detectors, dimmers, and/or sensors to reduce overall energy consumption and eliminate unnecessary lighting.
- (g) Landscape lighting, with low voltage less than 25 watts each, shall be mounted in or at grade (not to exceed three feet above grade) and used solely for landscape lighting.
- (h) The maximum height above the adjacent grade for luminaires, including the pole and pole base, shall not exceed 30 feet. (20 feet for street lights in residential developments).
- (i) Unless otherwise required by the FCC or FAA, towers or other structures requiring obstruction lighting at night shall generate the minimum lumens necessary, oscillating red in color.
- (j) Flag illumination must have narrow spot distribution so that light illuminates only the flag pole and the flag, provided the flag is of a government. The maximum lumen output is 9,000 lumens. Flags are encouraged to be taken down at sunset to avoid the need for lighting.

(k) Regulated luminaires requiring shielding shall not employ flexible or adjustable mounting systems.

(l) All non-essential commercial and non-residential outdoor lighting is encouraged to be turned off after business hours and/or when not in use. Essential outdoor lighting includes lighting associated with flag display, safety and security.

(m) New outdoor recreation facilities must conform to the requirements of this ordinance except when shielding requirements would interfere with the intended activity, as determined by the Director of Public Works or other designated official. Lighting must be off during times when not in use.

(n) Outdoor lighting shall comply with the lumen requirements in Table 1.

(o) Signs: refer to sign lighting ordinance.

(p) Façade lighting for all structures shall meet the requirements of the current energy codes as enforced by Meridian Township. Maximum of ten (10) foot-candles (measured on the vertical face) shall be allowed. 90% of the lumens shall fall on the surface to be illuminated. Barn doors shall be utilized to assure this requirement unless a photometric plan is submitted indicating that the distribution of the luminaire will meet this requirement without barn doors or other shielding. Ground mounted luminaires shall be positioned so that the lamp source is not visible from the adjoining properties including public streets and sidewalks.

(q) House Shields shall be installed on all luminaires that are within a distance of 2.5 times its mounting height from the property line when adjoining residential property.

### **Light Output Standards.**

The initial total amount of light, measured in lumens, from all lamps used in light fixtures shall not exceed the limits in Table 1 below. The initial lamp output, as defined by the manufacturer, is the value to be considered. For determining compliance with Table 1, the light emitted from lamps in light fixtures is to be included as follows:

(a) Outdoor luminaires on poles or installed on buildings or structures shall be included in the total by adding the initial lumen output of the lamp.

(b) Luminaires installed under canopies, overhangs or roof eaves where all parts of the luminaire are located at least five feet from the nearest edge of the canopy or overhang, are to be included as though they produce only one quarter of the lamp's initial lumen output.

(c) The values in Table 1 are upper limits and not design goals; design goals should be the lowest levels that meet the requirements of the task.

**Table 1**

<b>Area</b>	<b>Total Lumens/per acre (of area to be illuminated)</b>	<b>Maximum Footcandles in any one spot</b>
<b>Non-residential in residential (with SUP), C-1, RD, RDD, RN</b>	120,000	N/A
<b>C-2, PO, RP, RC, RCC, and MUPUD</b>	140,000	
<b>C-3, CS, CR and I</b>	200,000	
<b>Internally on site<sup>1,2</sup></b>		10
<b>Driveways</b>		3
<b>At property line if abuts residential property</b>		.5
<b>At property line if abuts nonresidential property</b>		1
<b>Sidewalks in all zoning districts except one and two residential</b>	N/A	.5
<b>All Service Station Canopies in any district</b>	N/A	20 10 (Where adjacent to roadways with no street lights)
<b>Outdoor Recreational Facilities</b>		50 at ground level
<b>Floodlight/spotlight</b>		5

<sup>1</sup> A motor vehicle dealership site shall not exceed 20 foot-candles at the front row and 10 in all other areas, and 3 in driveways.

<sup>2</sup> Building entrances and stairways/stairwells shall not exceed 10 foot-candles.

### **Standards for Outdoor Recreational Facilities.**

(a) Partially shielded luminaires for outdoor recreational facilities are permitted as a substitute for full shielding. However, substitutes must shield to reduce, glare, safety hazards, light trespass and light pollution; shall provide levels of luminance consistent with nationally recognized standard such as the Illuminating Engineering Society of North America (IESNA); and shall be operated on a schedule that coincides with scheduled events. Tennis, volleyball, racquetball, handball and other similar courts, and swimming pools must utilize fully shielded luminaires.

(b) No outdoor recreational facility, public or private, shall be illuminated after 11 p.m. except to conclude a sporting event or activities already in progress.

### **Street Lights for Residential Developments.**

(a) Street light installation for residential developments including any new street light installation by existing residential developments, shall utilize sharp cut-off luminaires. (see Exhibit 1). Maximum height above grade to be twenty (20) feet.

### **Service Stations and other Fueling Facilities.**

(a) Gas station canopies must utilize canopy lights that are sharp cut-off. All other requirements of this article must be adhered to.

### **PART III: EXISTING OUTDOOR LIGHTING:**

**All existing outdoor lighting (as of the date of this article) will be grandfathered except for the following:**

- 1. Wall mounted luminaires over 1000 initial lumens.**
- 2. Luminaires under canopies and soffits if over 1000 initial lumens.**
- 3. Adjustable luminaires if over 1500 initial lumens.**
- 4. Ground mounted luminaires if over 1000 initial lumens.**

**It is the intent of Part III to require the luminaires mentioned above to be brought into conformance within the allotted time stated below. It is not the intent to require modifications to poles, wiring, or locations of luminaires.**

### **General Standards**

(a) Except for maintenance, all nonconforming luminaires may not be replaced or modified to perpetuate their existence unless the replacement or modification makes the grandfathered luminaires conforming. If a lamp is available that makes the non-conforming luminaires conform, or progress towards conformance with the ordinance's requirements, such a lamp shall be used when the lamp is replaced.

(b) A nonconforming luminaire may not be returned to service after any discontinuance of use lasting more than six (6) consecutive months unless that nonconforming luminaire is first brought into compliance with the requirements of this article.

(c) Within **ninety (90)** days of the effective date of this article, nonconforming luminaires that cause or contribute to a disability glare, as defined in this article, shall be shielded or redirected to eliminate glare. Such luminaires shall be retrofitted for compliance with this article. **If work cannot be completed within the ninety days, a purchase order indicating that the work and material has been ordered will temporarily suffice.**

(d) Within **ninety (90)** days of the effective date of this article, nonconforming spotlights and floodlights elevated above the ground with a total lamp output greater than **1500** lumens, must be adjusted so that their axis of illumination is at an angle not greater than 20 degrees measured from the vertical line between the fixture and the ground (see Exhibit 2). This subsection applies only to spotlights and floodlights with adjustable mounts and does not apply to outdoor recreational facilities.

(e) Prior to the time of required compliance in section \_\_\_\_\_, in addition to the above requirements, an owner of a non-conforming luminaire who is not making modifications to the luminaire must replace a luminaire so that it conforms to this article, if requested by the Township. Replacement or modification of such luminaires must be provided at no cost to the Township including materials and labor.

### **Compliance.**

(a) *Adjustable Outdoor Light Fixtures.* Any adjustments necessary to bring an adjustable outdoor light fixture into compliance with this article shall be completed within **ninety (90) days** from the effective date of this article.

(b) *Non-adjustable Outdoor Light Fixtures.* Non-adjustable outdoor light fixtures installed prior to the effective date of this article may continue in service without adjustment or modification for **five (5)** years.

(c) New outdoor light fixtures and/or posts installed after the effective date of this article, including replacements for existing fixtures and/or posts, must conform to this article.

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