

OUTDOOR LIGHTING ORDINANCE DRAFT 1/23/07

Section ??-1 Title.

This Ordinance shall be known and cited as the “Outdoor Lighting Ordinance of the Charter Township of Meridian.”

Section ??-2 Definitions.

Cut-off, full or sharp: means a “fully shielded” luminaire with additional shielding which limits the amount of light to only ten percent (10%) within the region 20 degrees below the horizontal plane and ninety percent (90%) between 90 degrees and 20 degrees below the horizontal plane (see Figure 1).

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

Floodlight or spotlight: means any light fixture, luminaire, 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, a light affixed to a light pole in a parking lot is not considered a floodlight or spotlight.

Footcandle: means 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 (6) feet above grade.

Fully shielded: means 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 Figure 2).

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

Glare, disability: means 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.

Illuminance: means the amount of light falling on any point of a surface measured in footcandles.

Iso-illuminance curve: means 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: means Illuminating Engineering Society of North America (IES or IESNA). The professional society of lighting engineers.

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

Landscape lighting: means luminaires intended solely for lighting landscape material.

Light pollution: means general sky glow caused by the scattering of artificial light in the atmosphere.

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

Lighting plan: means 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: means 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: means 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."

Luminaire, maintenance of nonconforming: means the repair or replacement of a nonconforming luminaire limited to lamps, ballast, broken lens or globe, broken or damaged internal parts, and electrical connections.

Luminaire, nonconforming: means a luminaire that does not conform to this article but was lawfully in existence prior to the effective date of this article.

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

Outdoor recreational facility: means 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: means 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.

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

Sky glow: means the halo effect from 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.

Section ??-3 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.

Section ??-4 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.

Section ??-5 Nonconforming Outdoor Lighting.

(a) All outdoor lighting lawfully in place prior to the effective date of this article which are not in compliance with the requirements of this article may remain in effect until required to comply as provided for in Section ??.

(b) Except for maintenance of nonconforming luminaire, as defined in this article, a nonconforming luminaire may not be replaced or modified to perpetuate its existence unless the replacement or modification makes the luminaire conforming. If a lamp is available that makes the luminaire conform, or progress towards conformance with the ordinance's requirements, such a lamp shall be used when the lamp is replaced.

(c) 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.

Section ??-6 Exemptions.

(a) The following types of outdoor lighting are exempt from the regulations of this article:

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

(b) The following types of outdoor lighting are prohibited from causing direct light or glare towards residential structures or any adjacent or nearby properties but are otherwise 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.

(1) Window displays.

(2) Decorative holiday lighting

(3) Publicly-owned traffic signs or emergency signs.

(4) Signs for historic landmarks, where signage is using historic lighting technology.

(5) Temporary lighting.

(6) Interior lighting.

(7) Underwater pool lights.

(8) Porch and garage lighting on single and two family residences.

Section ??-6 Compliance.

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

(b) 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.

(c) 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 from the effective date of this article.

(d) 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.

(e) 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 Figure 3). This subsection applies only to spotlights and floodlights with adjustable mounts and does not apply to outdoor recreational facilities.

(f) Prior to the time of required compliance and in addition to the above requirements, an owner of a nonconforming 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 Board. Replacement or modification of such luminaires must be provided at no cost to the owner including materials and labor.

Section ??-7 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.
- (d) Mercury-Vapor/Quartz lights.

Section ??-8 General Standards.

The following standards shall apply to all outdoor luminaires unless otherwise stated in this article.

- (a) Luminaires with 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 Figure 2). Luminaires with lumens of more than 3500 shall be shielded with sharp cut-off or full cut-off fixtures (see Figure 1).
- (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 and shall not exceed a maximum of one (1) foot-candle at the property line.
- (d) Floodlights and spotlights mounted on a pole or on a building shall be designed, shielded, installed and maintained in a manner that directs the light downward and away from adjacent properties and streets. The floodlight or spotlight shall be aimed no higher than 20 degrees measured from the vertical line between the fixture and the ground (see Figure 3). The total lamp output shall not exceed 1500 lumens per fixture.
- (e) Whenever practicable, outdoor lighting systems shall include timers, motion detectors, dimmers, and/or sensors to reduce overall energy consumption and eliminate unnecessary lighting.

(f) Landscape lighting, shall have a wattage of less than 25 watts per fixture, shall be mounted in or at grade (not to exceed three (3) feet above grade) and used solely for landscape lighting.

(g) The maximum height above the adjacent grade for luminaires, including the pole and pole base, shall not exceed 30 feet, except the maximum height for street lights in residential developments shall not exceed 20 feet.

(h) 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.

(i) Flag illumination must have narrow spot distribution so that light illuminates only the flagpole and the flag. In any residential zoning district, the maximum lumen output is 1500 lumens and in any other zoning district, the maximum lumen output is 9000 lumens. Flags are encouraged to be taken down at sunset to avoid the need for lighting.

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

(k) 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 safety, security, and flag display.

(l) 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 Community Planning and Development. Lighting must be off during times when not in use.

(m) All luminaires that are within a distance of 2.5 times its mounting height from the property line when adjoining residential property shall be properly shielded.

(n) No wall mounted luminaire, ground mounted luminaire, or a luminaire installed under canopy, soffit, overhang or roof eave shall exceed 1500 lumens per fixture, other than landscape lighting.

(o) Decorative and architectural lighting shall be fully shielded and directed downward and shall not exceed 1500 lumens per fixture.

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

Section ??-9 Light Output Standards.

The total amount of light, measured in lumens, from all lamps used in light fixtures shall not exceed the limits in Table 1. 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 lumen output of the lamp.

(b) Luminaires installed under canopies, soffits, overhangs or roof eaves where all parts of the luminaire are located at least five (5) 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 maximums and not design goals; design goals should be the lowest levels that meet the requirements of the task.

Table 1

Area	Total Lumens/per acre (of area to be illuminated)	Maximum Footcandles in any one spot
Non-residential in residential C-1, RD, RDD, RN	144,000	N/A
C-2, PO, RP, RC, RCC, and MUPUD	168,000	
C-3, CS, CR and I	240,000	
Internally on site^{1,2}		10
Driveways		3
At property line if abuts residential property		.5
At property line if abuts nonresidential property		1
Sidewalks in all zoning districts except one and two residential	N/A	.5
All Service Station Canopies in any district	N/A	20 10 (Where adjacent to roadways with no street lights)
Outdoor Recreational Facilities		50 at ground level
Floodlight/spotlight		5

¹ 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.

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

Section ?? -10 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 standards 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 11:00 p.m. except to conclude a sporting event or activities already in progress.

Section ??-11 Street Lights for Residential Developments.

Street light installation for residential developments including any new street light installation in existing residential developments, shall utilize sharp cut-off luminaires (see Figure 1). The maximum height of street lights above grade shall not exceed 20 feet.

Section ??-12 Service Stations and other Fueling Facilities.

Gas station canopies must utilize canopy lights that are sharp cut-off.

Section ??-13 Required Lighting Plans.

(a) At any time site plan approval is required from the Township, the applicant shall submit in conjunction with the site plan, a lighting plan which identifies all existing and proposed outdoor lighting on the site, the design and height of all luminaires, lumen output for each luminaire, total lumen value for the site expressed in lumens per acre of the 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 Township 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 Township to determine whether the proposed lighting will comply with this article. A photometric plan may be required to be submitted if determined necessary by the Director of Community Planning and Development.

(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 Township to determine whether the proposed lighting will comply with this article. A photometric plan may be required to be submitted if determined necessary by the Director of Community Planning and Development.

(d) Upon completion of the installation or modification of any outdoor light fixture(s) as part of an approved lighting plan, and prior to the issuance of a Certificate of Occupancy when

required, a registered engineer or architect shall verify in writing to the Director of Community Planning and Development the 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 Township to readily determine whether compliance with the requirements of this article will be secured.

Section ??-14 Waiver.

(a) Any individual may submit a written request to the Director of Community Planning and Development 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(s) for the waiver.

(b) The Director of Community Planning and Development 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 Director of Community Planning and Development shall ensure that consideration has been given by the applicant to minimizing glare, light pollution, and light trespass.

Section ??-15 Appeal.

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

- (a) A written statement containing the specific reason for the appeal must be filed with the township clerk within ten (10) days of the date of the decision sought to be appealed.
- (b) 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 the time and place for consideration of an appeal shall be sent by mail or personal delivery not less than five (5) days prior to the date of the hearing to the parties making the appeal. All notices shall be sent to addresses listed on the most recent assessment roll.

(d) 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 Director of Community Planning and Development 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 Director of Community Planning and Development could have made with respect to the subject matter of the appeal.

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

Section ??-16 Enforcement.

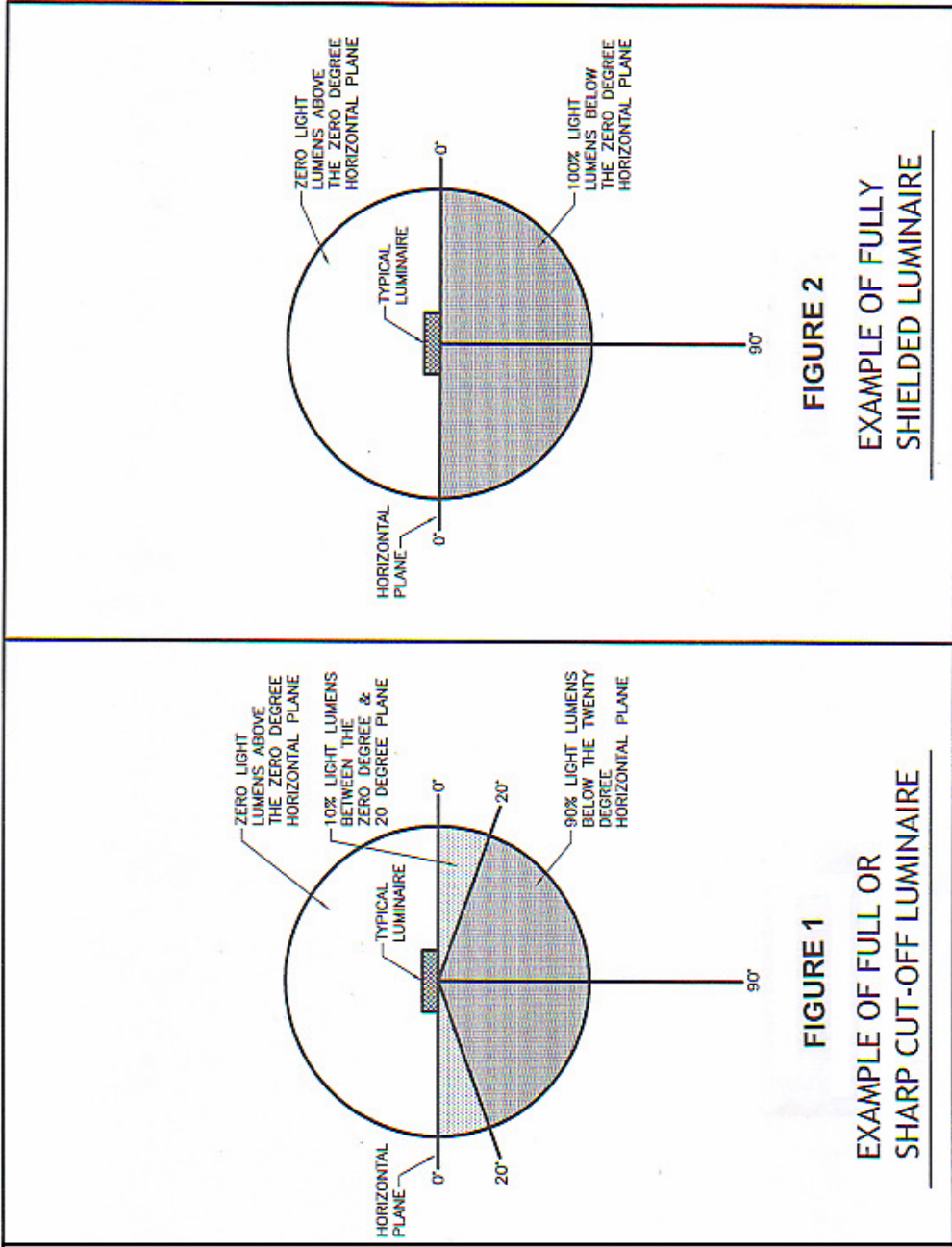
(a) Any commercial or residential developer, lighting engineer, lighting designer or consultant, lighting installer, lighting utility company found in violation of this article, or contributing to a violation of this article shall be ordered to cease further lighting development/installations on the 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.

Section ??-17 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.

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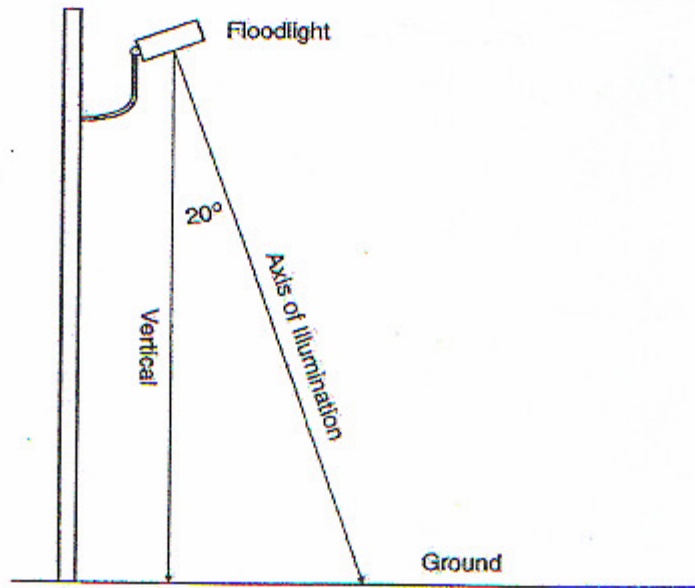


FIGURE 3

The axis of illumination shall be adjusted to an angle not more than 20 degrees from the vertical line between the fixtures and the ground.