



## **How is the Zoning Ordinance Organized?**

The Zoning Ordinance contains 23 articles and is organized into six parts: Introduction, Zoning District Regulation, Development Provisions, Review Processes and Standards, Administration, and Definitions and Checklists, as described in the following table:

| Zoning Ordinance Content                                  |   |  |  |  |  |
|---|---|--|--|--|--|
| Article   | Description   |  |  |  |  |
| Part I Introduction                                       |   |  |  |  |  |
| Article 1: Title and Purpose                              | Describes the State statutes that authorize zoning in Michigan; describes the public purpose/rationale that is the foundation of zoning and the basic legal framework.  |  |  |  |  |
| Part II Zoning District Re                                | gulation  |  |  |  |  |
| Article 2: General<br>Requirements and<br>Interpretations | An outline of the zoning districts established by the ordinance and an explanation of how to interpret the zoning map boundaries and some use provisions.   |  |  |  |  |
| Article 3: Residential Zoning Districts                   | Allowed uses, dimensional requirements, building/design requirements, and important references are established here for all the residential districts.  |  |  |  |  |
| Article 4: Commercial and Industrial Zoning Districts     | Allowed uses, dimensional requirements, building/design requirements, and important references are established here for all the non-residential districts.  |  |  |  |  |
| Article 5: Overlay Zoning Districts                       | Description of five overlay zoning districts that add a higher level of review and additional requirements beyond what is required outside of their boundaries to address unique resources, circumstances, or uses.   |  |  |  |  |
| Article 6: Planned Unit<br>Development                    | Regulations applicable to the creation of a planned unit development, including basic qualification requirements, allowed uses, standards for open space, modification of requirements, and development incentives. Planned unit development is a collaborative planning process between the Township and a developer to benefit the community. |  |  |  |  |
| Part III Development Pro                                  | ovisions  |  |  |  |  |
| Article 7: General<br>Provisions                          | Rules that generally apply to all zoning districts or a class of districts, such as all residential or commercial districts, are contained in this article.   |  |  |  |  |
| Article 8: Specific Use<br>Requirements                   | Some uses that may potentially have impacts related to traffic, noise, later hours of operation, and similar negative effects are subject to additional requirements and review procedures. These uses and the added  |  |  |  |  |
| Autiala O. Cita Liahtia                                   | requirements are listed in this article.  Standards applicable to site lighting are found in this article, including  |  |  |  |  |
| Article 9: Site Lighting                                  | Standards applicable to site lighting are found in this article, including location, fixture height, light levels, separation from residential properties, and glare. This article embraces Dark Sky Friendly principles.   |  |  |  |  |

# **Article 9. Lighting**



Section 9.10 Intent and Purpose

Section 9.20 General Requirements

**Section 9.30 Light Fixture Requirements** 

Section 9.40 Parking Lot and Site Lighting Plans

**Section 9.50** Site Lighting Levels

**Section 9.60 Lighting Modifications** 

### Section 9.10 Intent and Purpose

- A. **Intent and Purpose.** The intent and purpose of this article are to:
  - 1. Implement the Five Principles for Responsible Outdoor Lighting, published by DarkSky and the Illuminating Engineering Society;
  - 2. Conserve energy;
  - 3. Protect the natural environment from the adverse effects of artificial light;
  - 4. Curtail the degradation of the nighttime visual environment;
  - Ensure that all site lighting is designed and installed to maintain adequate lighting levels on-site;
  - 6. Prevent light spillage;
  - 7. Prevent glare directed at adjacent properties, neighboring areas, and motorists; and
  - 8. Provide security for people, buildings, and land.

## Section 9.20 General Requirements

- A. Applicability. This section applies to all properties in the Township.
- B. **Limitations.** Light shall be confined on-site by the direction of the fixture, shielding, or adjustment of the level of brightness.
- C. **Glare.** Lighting shall not be directed in any manner that causes glare onto neighboring residential property or distraction to drivers.
- D. **Direction.** All outdoor lighting shall be directed down or directly onto the object being illuminated. Lighting or glare shall not be directed toward streets, adjacent properties, or the night sky.
- E. **Prohibited Light Sources.** The following light sources are prohibited:
  - 1. Laser Source. The use of laser source light or any similar high-intensity light for outdoor advertising or entertainment is prohibited.
  - 2. Searchlights. The operation of searchlights for advertising purposes is prohibited.

- 3. Flashing Lights. Except for motion-activated security lighting and temporary holiday lighting, permanent lights that flash, move, revolve, rotate, scintillate, blink, flicker, vary in intensity or color, or use intermittent electrical pulsation are prohibited.
- 4. Public Safety. Lighting that is similar to that used for traffic control devices or emergency vehicles is prohibited.

#### F. Required Lighting.

- 1. All non-residential and multi-family residential parking lots shall be illuminated for customer and resident safety.
- 2. Lighting shall be provided throughout any parking lot.
- 3. Lights to illuminate parking lots shall not be attached to any building except for illuminating parking spaces that are within 10 feet of building walls.
- 4. For commercial and industrial properties, light levels shall be reduced 50 percent after the close of business.

### Section 9.30 Light Fixture Requirements

- A. **Color Temperature**. The lighting color temperature of new and replacement light fixtures shall not exceed 2,700 Kelvins.
- B. **Fixture Type**. Lighting fixtures for non-residential and multi-family residential uses shall be a downlighted type and fully cut off, and the light shall not be allowed to be emitted above the fixture. For LED lighting, up-light shall be zero for "B.U.G." ratings. Fixtures shall comply with the following requirements:
  - 1. A full cut off fixture shall have no direct up-light and shall reduce glare by limiting the light output to less than 10 percent at and below 10 degrees below the horizontal.
  - 2. If the applicant cannot provide manufacturer confirmation of full cut off characteristics of light fixtures, the fixture shall be fully shielded, which will be determined by visual inspection of the fixture or a specification sheet. Fully shielded light fixtures are constructed and installed in such a manner that all light emitted by it, either directly from the lamp or a diffusing element or indirectly by reflection or refraction from any part of the fixture, is projected below the horizontal.
  - 3. Under-canopy lighting shall be mounted flush with the canopy surface.
  - 4. Examples of compliant and noncompliant light fixtures are shown in Figures 9-1 and 9-2.
- C. Mounting Height. Light fixture mounting heights shall not exceed the following:

| Table 9.30: Light Fixture Mounting Height |   |                      |  |  |  |
|---|---|----------------------|--|--|--|
| Zoning District                           |   | Maximum Height (ft). |  |  |  |
| Residential                               |   | 15                   |  |  |  |
| Commercial                                | Less than 100 feet from a residential zoned lot | 20                   |  |  |  |
| and Industrial                            | 100 feet or more from residential zoned lot     | 25                   |  |  |  |

## Noncompliant: Fixtures that produce light trespass and glare

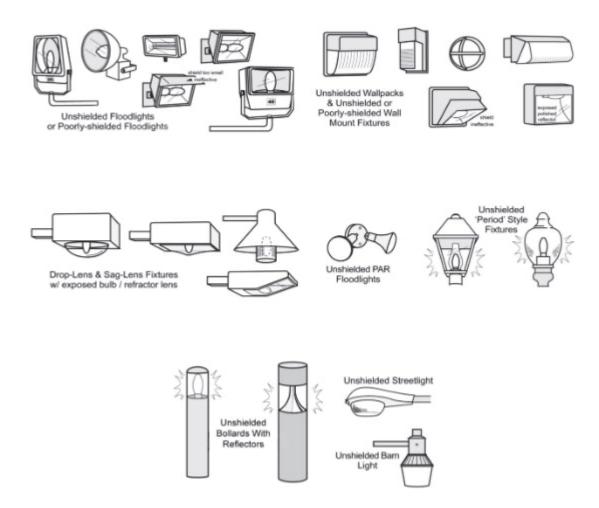


Figure 9-1 Noncompliant Light Fixtures

**Compliant:** Fixtures that shield the light source to minimize glare and light trespass and to facilitate better vision at night

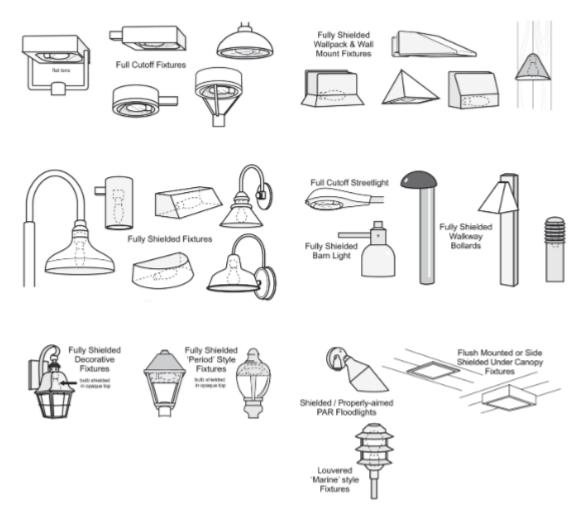


Figure 9-2 Compliant Light Fixtures

## Section 9.40 Parking Lot and Site Lighting Plans

- A. **Lighting Plan Submittal.** An overall lighting plan is required for all non-residential and multi-family parking lots. The Zoning Administrator or Planning Commission shall require a photometric plan for other areas illuminated on a site to ensure that the intent and requirements of this section are met.
- B. **Submittal Requirements**. Compliance with the lighting design criteria shall be demonstrated by submitting the following information as part of the required site plan:
  - 1. Lighting plan (as part of the site plan package) showing light fixture locations and type designations.
  - 2. Fixture mounting height(s).
  - 3. Type and number of lighting fixtures.
  - 4. Lamp source type (bulb type, i.e. high-pressure sodium, LED, etc.), lumen output, color temperature, and wattage.
  - 5. Lighting manufacturer-supplied specifications (cut sheets) that include photographs or illustrations of the fixture(s), indicating the certified full cut off characteristics or B.U.G. rating of the fixture or demonstration that the fixture is fully shielded.
  - 6. Photometric Plan. A photometric plan shall include the following:
    - a. Maximum illuminance levels should be expressed in ground-level footcandle measurements on a grid of the site showing footcandle readings in every five or ten-foot square.
    - b. The grid shall include light contributions from all sources (i.e. pole-mounted, wall-mounted, sign, and street lights).
    - c. Footcandle measurements shall be shown five feet beyond the property lines.
    - d. A calculation summary indicating footcandle levels on the lighting plan, noting the maximum, average, and minimum, as well as the uniformity ratio of maximum to minimum, and average to minimum levels. Average and uniformity ratios shall only be calculated within the parking spaces and drive aisles and shall exclude other illuminated areas of the site.

## Section 9.50 Site Lighting Levels

A. Illumination Levels. Light levels shall meet the requirements in Table 9.50.

| Table 9.50: Required Site Illumination   |         |                        |         |                            |  |
|--|---------|------------------------|---------|----------------------------|--|
| Location on Site                         | Min. fc | Max. fc                | Ave. fc | Uniformity Ratio           |  |
|  |         |                        |         | Max. to Min./ Ave. to Min. |  |
| Parking Lots                             | .5 fc   | 5 fc                   | 1 fc    | 10:1 / 4:1                 |  |
| Under Canopies Such as Gas Stations,     | 3 fc    | 20 fc                  | -       | -                          |  |
| Drive-Thru Bank Porte-Cochere            | 310     |                        |         |                            |  |
| Along Front Lot Line Adjacent to the     | 0 fc    | 1 fc                   | -       | -                          |  |
| Street Frontage                          |         |                        |         |                            |  |
| Along a Lot line Adjoining a Non-        | O fo    | 0 fc 1 fc <sup>1</sup> | -       | -                          |  |
| Residential Use or District              | 010     |                        |         |                            |  |
| Along a Lot line Adjoining a Residential | 0 fc    | 0 fc                   | -       | -                          |  |
| Use or District                          | 010     |                        |         |                            |  |
| Non-Residential Outdoor Storage          | 0 fc    | 10 fc                  | -       | -                          |  |

## Section 9.60 Lighting Modifications

- A. **Authority**. The Planning Commission may modify the illumination requirements in Table 9.50 and other lighting requirements based on a review of the applicant's proposal against industry standards and advanced lighting technology, so long as lighting plans ensure safe conditions and minimize impact on adjacent properties.
- B. **Unique Land Uses**. As part of site plan review by the Planning Commission, lighting systems not complying with the technical requirements of this article but consistent with its intent may be installed for the following land uses:
  - 1. Sports fields and stadiums.
  - 2. Specialized lighting for outdoor recreational uses.
  - 3. Other unanticipated uses.
- C. **Considerations**. The Planning Commission shall consider the following during the review of lighting modification requests:
  - 1. The amount of space on the site available for lighting.
  - 2. Existing lighting on the site and on adjacent properties.
  - 3. The type of land use on the site and the size of the development.
  - 4. The potential impact on existing and proposed adjacent land uses.
  - 5. The effect that the required lighting would have on the operation of the existing or proposed land use.

<sup>&</sup>lt;sup>1</sup> The light level along a non-residential lot line may be increased to the maximum footcandle level where there is shared access/vehicular connections or the adjacent use is a similar use.