



**Michigan Association of Planning**  
**A Chapter of the American Planning Association**

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The Planning and Zoning Officials Academy provides local elected and appointed officials with both basic and advanced topics addressing issues that are unique to the role as a local government representative. To suggest a topic, please contact Kelly McIntyre at (734)913-2000.

## **Exterior Lighting**

Artificial outdoor lighting now dominates the night sky of many communities. Such lighting serves a wide variety of purposes; it attracts attention, entertains, enhances security, warns of danger, and lights paths.

The character of outdoor lighting in any community is the result of many individual decision by government, businesses, electric utilities, advertisers, and property owners.

These decisions may be made without consideration of possible health, safety, and welfare impacts, resulting in unwanted glare, light trespass, and light pollution problems for neighboring properties and the community as a whole.

*Put these in a shaded box to the side:*

*Glare* is excessive brightness caused by an unshielded, high intensity light source, which can be a serious safety hazard for nearby pedestrians and motorists.

*Light trespass* is poorly controlled outdoor lighting that crosses property boundaries, detracting from the quality of life of adjacent property owners and confusing the instinctive daily and seasonal cycles of animals and plants.

**Michigan Association of Planning**  
**219 South Main Street, Suite 300 Ann Arbor, Michigan 48104**  
**Phone: 734.913.2000 Fax: 734.913.2061 web: [planningmi.org](http://planningmi.org)**

*Light pollution* is excessive, unshielded or undirected artificial light from signs, parking lots, streetlights and other sources that reflects off particles in the atmosphere, creating a characteristic “sky glow” which limits our enjoyment of the night sky, even in more rural areas.

The zoning ordinance is an effective tool to address these issues. An exterior lighting section should include each of the following elements.

### **Maximum Illumination Levels**

Often the intensity of today’s outdoor light sources exceeds what is needed for visibility, safety, and security at night. Illumination standards within a site and at any property line or street right-of-way should be established to ensure that all sites are adequately, but not excessively, lit at night. In general, a maximum illumination level of 10.0 footcandles with a site and 1.0 footcandle at any property line is more than enough for comfortable night visibility.

### **Photometric Grid**

An outdoor lighting plan with a photometric grid showing illumination levels from all exterior light sources on a site (parking lot fixtures, building lighting, sign lighting, etc.) should be included with all site plans submitted for review.

### **Light Fixture Design Standards**

Parking lot and building-mounted security lighting (often referred to as “wall-packs”) should be “full cutoff” fixtures that are directed straight downward. High intensity lamps should be fully shielded to prevent off-site glare by using louvers, guards or reflectors. Sign lighting should be directed downward from the top of the sign to prevent light pollution.

### **Standards by Type of Land-Use**

Special provision for gas stations (up to 20.0 footcandles maximum under the canopy) and automobile dealership sales lots (up to 15.0 footcandles within the lot) should also be included to minimize off-site glare and light pollution problems from these high-intensity users of light.

### **Exceptions**

The ordinance should include exceptions for holiday decorations, special events, and decorative residential lighting. When reviewing an outdoor lighting plan, keep the following questions in mind:

**“Where is light needed...and where is it not wanted?”** Adequate light should be provided for high traffic areas, including sidewalks, parking lots, and building

entrances, but check plans carefully to insure that commercial and industrial sites do not cause light trespass problems for neighboring residents and natural areas.

**“How much light is needed for a particular site or level of activity?”** The human eye is the key factor in determining the proper light intensity for a particular activity. Temporary “night blindness” can be caused by unshielded light sources that interfere with the eye’s ability to adjust for low light conditions, or by extreme contrasts between bright and dark areas of a site. One of the best ways to understand how to particular light levels “feels” is to purchase or rent a small light meter and visit gas stations, parking lots, and other sites a night to measure the on-site lighting intensity. It will then be easier to judge possible impacts of proposed illumination levels shown on a photometric grid upon people actually visiting the site.

**“Which type of light fixture would be best suited for the task?”**

Lighting decisions are often based on the lowest cost, rather than the best design. Specific fixture design standards in a zoning ordinance help to promote the use of better quality lighting. For more information about outdoor lighting design, visit the International Dark-Sky Association ([www.darksky.org](http://www.darksky.org)), Indiana Council on Outdoor Lighting Education ([icole.home.att.net](http://icole.home.att.net)) or Illuminating Engineering Society of North America ([www.iesna.org](http://www.iesna.org)).

In addition, Kim Lighting ([www.kimlighting.com](http://www.kimlighting.com)) and Lithonia Lighting ([www.lithonia.com](http://www.lithonia.com)) are two of the many lighting manufactures that have published online catalogs with pictures and specifications for easy reference.

The zoning ordinance can be an effective tool for balancing outdoor lighting needs for a particular site or use with the possible health, safety and welfare impacts on the greater community. Exterior lighting provisions, combined with educational resources available on the Internet, can be used by professional planners and planning commissioners to promote high quality outdoor lighting design that preserves the night sky for all of us to enjoy.