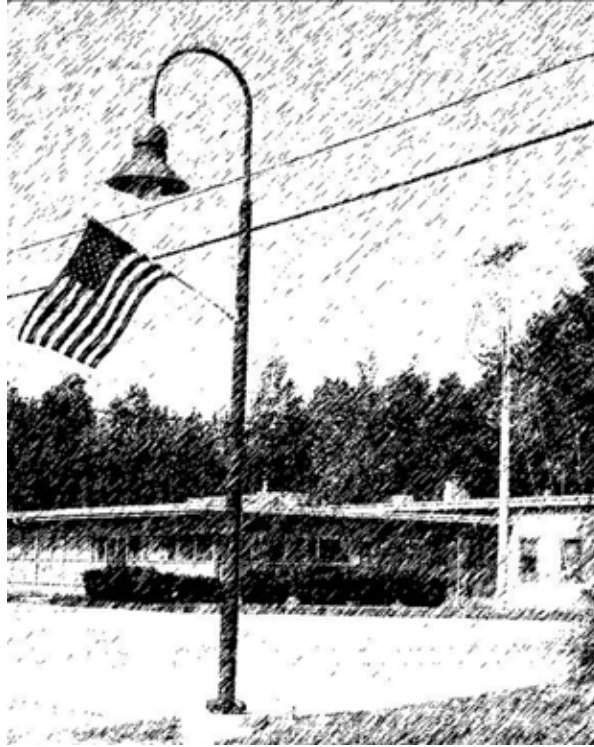


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# LIGHTING



**INTRODUCTION**

Outdoor lighting contributes to the visibility, safety, and visual quality of the Raymond commercial area. Lighting helps to identify businesses and to orient the driver and pedestrian. At night, lighting provides a level of safety for people and a degree of security for properties. To some abutting landowners, lighting can be a nighttime intrusion.

Lighting is one universal element that will be found in all commercial properties. Development should strive for continuity in lighting levels and placement.

The following lighting guidelines are designed to help balance the need for visibility and safety.

**Lighting Goals**

- Provide light levels that are in compliance with the Town’s requirements and do not exceed the IESNA recommended minimum standards.
- Provide appropriate levels of lighting to ensure visibility and safety while avoiding over-illumination.
- Encourage cohesiveness in lighting between properties within the commercial center.
- Avoid light fixtures or mountings that are distracting or hazardous to motorists or pedestrians.
- Avoid intrusions onto abutting property owners, especially residential uses.
- Minimize the effect of skyglow (reflected light from parking lots and large commercial users) on the night sky, especially as viewed from lakefront neighborhoods.
- Promote wise energy consumption.

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*The lighting plan for this commercial building considers both security and visual appeal for motorists and pedestrians.*

**OBJECTIVES**

Lighting for commercial facilities should be designed to provide the minimum level of illumination necessary for security, safety, and visual appeal for both pedestrians and vehicles. The Planning Board may determine that lighting may not be appropriate or necessary in some instances, due to the nature of the development or projected hours of operation. Lighting should encourage activity after sunset without adding to unnecessary skyglow. Functional, aesthetic, and safety goals should be met with distinctive yet cost effective fixtures.

**DESIGN GUIDELINES**

**Lighting Plan.** A Lighting Plan containing the following information shall be presented to the Planning Board during Site Plan review to allow them to properly understand and review the plan:

- Locations of all lighting fixtures proposed to illuminate building, roadways, service areas, landscaping, parking areas, and pedestrian areas. The type and intensity of any interior lights that will illuminate the grounds surrounding the building or create noticeable glare.
- Specifications and illustrations of lighting fixtures including pole heights, height of luminaire, photometric data, Color Rendering Index (CRI) of lamps (bulbs), and other descriptive information.
- A narrative that describes the site lighting, how lighting will be used to provide safety and security, and aesthetic effects.
- A photometric diagram that shows illumination levels from all externally and internally visible lighting sources, including existing sources, to show how the minimum amount of illumination will be provided and the maximum amounts will not be exceeded. (For parking lots with more than 25 spaces, or as required by the Planning Board.)
- A narrative should describe how lighting will be used to reinforce circulation patterns, emphasize entrances, and provide for security throughout the various phases. The plan should also illustrate how the style, color, type, and placement of lighting will be coordinated throughout the life of the project.

**Safety and Energy Conservation.** Illumination levels should not exceed the minimums to provide safe conditions as currently defined by the Illuminating Engineering Society of North America (IESNA), [www.iesna.org](http://www.iesna.org).

**Safety.** Buffers, screen walls, fencing, and other landscape elements should be coordinated with the lighting plan to eliminate dark spots and potential hiding places.

**Feature Lighting.** Unique building or landscape features may be highlighted if the lighting does not create glare or distraction. Neon bulbs used as lighting features are not allowed on the exterior of buildings.

**Light Trespass.** Lighting shall not cause spillover onto neighboring residential properties or create dangerous conditions due to glare on adjacent roadways. No upward lighting or bare bulbs are allowed where they may cause this problem.

**Luminaires.** Metal halide lamps are strongly recommended for color rendition and energy efficiency.

**Pole and Fixture Design.** The light poles and fixtures should be selected to complement the roadway and parking lot lighting, as well as the other elements of the streetscape.

**Energy Saving Devices.** Wherever practicable, lighting design should include the installation of timers, photo sensors, and other energy saving devices to reduce the overall energy required for the development and eliminate unnecessary lighting.



*A cut-off fixture that complements the simple line of this commercial building. The fixture is mounted on an 18-foot pole on a one-foot base for an effective height of 19 feet.*

**Holiday Lighting.** Additional lighting during the holiday seasons of November through January is encouraged.

**Maintenance of Light Fixtures and Bulbs.** Property owners and occupants should maintain fixtures and replace light bulbs as necessary to maintain the integrity of site plans and building permits approved by the town. Replacement bulbs shall conform to the specifications approved by the Planning Board.

**After-hours Lighting.** Where commercial properties abut residential areas, lighting in parking lots should be reduced to an average of 0.2 footcandles within one hour after closing.



*Pedestrian scaled lighting used to illuminate a crosswalk.*



*Highly detailed ornamental lighting, mounted on 10' poles, is in scale with the pedestrian environment.*



*These tall pole-mounted fixtures are out of scale with the development.*



*A light fixture that complements the surrounding architecture and site through the use of similar materials and appropriate scale.*



*Simple 'shoe-box' fixtures mounted on square poles provide a clean look that complements the site.*



*A well-coordinated lighting plan that uses variations on the same fixture for both walkway and parking lot lighting.*



*The wall-mounted light fixture on the right appears too small in relation to the height and scale of this large retail store. A proper installation is seen in the left photo.*



*Small spotlights directed downward are easily aimed to prevent glare. The simple design of the fixture complements the line and colors of the sign.*

**OBJECTIVES**

Lighting for driveways, parking lots, and outdoor sales and service areas should be designed to provide the minimum lighting necessary for safety, visibility, and comfort, without causing glare or avoidable spillover onto adjacent properties or roadways, or an increase in skyglow. Poles and fixtures should be proportional in size to the roadways they are illuminating. In general, if these areas are lit, they should have less illumination than other surrounding commercial uses.

**DESIGN GUIDELINES**

**Fixture Design.** The design and color of fixtures (poles and luminaires) should complement the architecture, landscaping, and street furnishing of the site in terms of color, form, and style.

**Layout.** The alignment and spacing of fixtures should follow a regular pattern that is coordinated with the orientation of buildings and other site elements. The layout of the lighting and landscaping should reinforce the direction of traffic flow within the parking lot and driveway. Driveway lighting should be designed to illuminate the sidewalk, with a concentration on the roadway.

**Location.** Wherever possible, light poles should be incorporated within raised planting areas to avoid damage from vehicles and plows.

**Bases.** The use of bases raised above the level of plantings (when installed in islands or plant beds) or higher than one foot above the level of the pavement (when installed in walkways) is discouraged.

**Coordination with Planting Plan.** The layout of light fixtures should complement the spacing and rhythm of surrounding plantings, especially large shade trees. The lighting plan should take into consideration growth patterns of trees to avoid excessive pruning as trees mature. The lighting plan should be coordinated with the landscape plane to avoid obstructions from large trees, dark spots from shadows, or other conflicts as plantings mature.

**Illumination Levels.** Light fixtures should be selected and aimed to prevent glare and spillage onto adjacent properties. Illumination levels should not exceed the standards in the Raymond Land Use Ordinance.

**Pole Heights.** The heights of light poles should be in scale with the size of the buildings they serve. In general, pole height should not exceed 20 feet. In parking lots with more than 100 cars, 25-foot poles may be used to reduce the number of lights. Light poles should not exceed 20 feet wherever they are located within 100 feet of residential properties.

**Adjacencies.** Light sources should be shielded from view of abutting residential properties.



*These light fixtures have been coordinated with the planting plan to avoid problems as the trees mature. Slightly raised bases protect the poles from plow damage.*



*The lighting in this parking area has been coordinated with the design of the lights used in the walkways and entrance drives.*

## DRIVEWAYS, PARKING LOTS, OUTDOOR SALES, AND SERVICE AREAS



*Lighting placed at the circumference of this parking lot blends into the surrounding trees, reducing its visibility during the day.*



*These lighting fixtures are taller than the main building and out of scale with the site.*



*Spotlight fixtures should be avoided since they are difficult to aim and may cause spillover onto adjacent properties.*



*This parking lot lighting illuminates the walkway and emphasizes the route to the front door.*

**OBJECTIVES**

The lighting of pedestrian spaces should consider users' needs and safety. Light standards should adequately, but not excessively, illuminate not only the space occupied by people, but also the elements within those spaces such as stairs, walls, benches, curbs, and landscaping.

**DESIGN GUIDELINES**

**Design.** The light poles and fixtures should be selected to complement the Town's existing walkway lights.

**Heights.** Pole heights for pedestrian lighting should be appropriate for the project and the setting. Bollard lights (low-level light sources contained in 3-4 foot high poles) and ornamental fixtures are encouraged to illuminate pedestrian areas. When decorative or special lighting is used, pole heights should generally be 12 feet or less in height.

**Luminaires.** Luminaire should be classified by IESNA as a non-cutoff or cutoff. In general light sources should not exceed 100 watts.

**Decorative Fixtures.** Ornamental and decorative lighting is encouraged to highlight significant design elements (e.g., gateways, plazas, major building entrances).



*Low pedestrian lights must be well constructed and secured to a permanent base to prevent damage and dislocation. The fixture on the left appears unstable and prone to damage. The bollards on the right provide even illumination and complement the building.*



*Unshielded wall-pac lighting can cause dangerous glare and make it difficult to see the stairway.*



*The glare from this unshielded walkway light may make it difficult to recognize faces of oncoming pedestrians.*



*These 10-foot fixtures add human scale to the landscape while illuminating the pathways and outdoor use areas.*



**OBJECTIVES**

Facade and landscape lighting may be an appropriate way to highlight special architectural features and attractively landscaped areas, while adding depth and variety at night. This type of lighting should be limited to areas where it enhances particular features in accordance with the overall lighting plan and does not disturb surrounding residential areas.

**DESIGN GUIDELINES**

**Intent.** Where required by the Planning Board or CEO, the lighting plan narrative should describe how the facades of individual buildings and/or landscaping will be lit (if at all) and the design intent behind such lighting.

**Levels.** Maximum level of illumination on any vertical surface should not exceed 5.0 footcandles, as demonstrated in documentation provided by either the lighting manufacturer or installer’s documentation.

**Location.** Fixtures should be properly located, aimed, and shielded so that light is directed only onto the building facade and not onto oncoming traffic or pedestrians. Lighting fixtures should not be directed toward adjacent streets, sidewalks, or properties.

**Types.** Lighting fixtures should be mounted on the facade and designed to wash the face with even light in a downward direction.

**Mounting Heights.** Building-mounted light fixtures should not be mounted more than 15 feet above the base of the building on facades facing public streets, and 20 feet on all other facades.

**Landscape Lighting.** Landscape lighting should be properly sited, aimed, and shielded so that light is directed only onto the selected tree or shrub. Lighting fixtures should not be directed toward adjacent streets, sidewalks, or properties. The lighting plan should demonstrate that the installation will not generate excessive light levels, cause glare, or direct light beyond the landscaping toward the night sky. Indirect landscape lighting (uplighting and washes) is encouraged over high branch-mounted floodlights aimed toward the ground.



*These facade-mounted lighting fixtures are visually compatible with the form and color of the building.*



*Unshielded facade-mounted lights are not allowed because they cause glare and spill light onto adjacent properties.*

**OBJECTIVES**

Lighting incorporated into canopies or protective architectural features built in conjunction with gas stations, convenience stores, and drive-throughs should illuminate the activities taking place in such locations without creating glare onto adjacent properties or roadways.

**DESIGN GUIDELINES**

**Gasoline Pumps.** Areas around gasoline pumps and under canopies where a higher level of light is necessary for effective use of pumps should be illuminated so the average horizontal illuminance at ground level is 30 footcandles or less, with a uniformity ratio of 1.25 (average to minimum). The maximum light levels only apply to the area under and within 20 feet of the canopy. Areas beyond 20 feet from canopies and gasoline pumps should follow the guidelines for parking lots. If gasoline pumps are not provided under a canopy, the entire apron should follow the guidelines for parking lots.

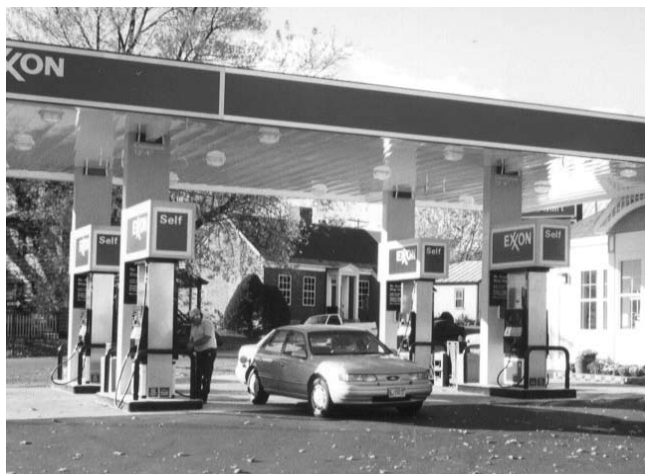
**Canopy Luminaires.** Recessed luminaires with flat or regressed lenses shall be used in canopies so the motorist cannot see the source of light. The cutoff angle should not exceed 85 degrees above the vertical to make the light source invisible to passing motorists. (See Architecture for additional design guidelines for canopies.)

**Retrofitting.** The Town strongly encourages the retrofitting of existing canopies that currently have dropped light fixtures.

**Fascia.** Lights should not be mounted on the sides (fascia) or top of the canopy. Sides and tops of canopies should not be illuminated.



*An example of dropped canopy fixture that spills light beyond the property line and causes potentially hazardous glare.*



*Drop fixtures are not allowed since they can produce dangerous levels of glare and cause a nuisance to abutting properties.*



*Lighting should be considered as an integral part of the canopy design. These canopy fixtures are recessed so the light source is not visible and do not create 'hot spots' that are distracting to the passing motorist.*