

ARTICLE X
OUTDOOR LIGHT FIXTURES CONTROL
TOWN OF WHITSETT

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ADOPTED BY TOWN COUNCIL JUNE 12, 2007

ARTICLE X

**OUTDOOR LIGHT FIXTURES CONTROL
TOWN OF WHITSETT**

10-1 OUTDOOR LIGHT CONTROL

10-1.1 Purpose and Intent

The purpose of this section is to regulate the placement, orientation, distribution and fixture type and size of outdoor lighting. The intent of this section is to encourage lighting that provides safety, utility and security, as well as preventing glare on public roadways, and to protect the privacy of adjoining properties.

10-1.2 Conformance with Applicable Codes and Ordinances

All outdoor artificial illumination devices shall be installed in conformance with the provisions in this Article, applicable provisions of the Zoning Ordinance, and the provisions of the most recent applicable electrical code. Where there is conflict between the provisions of this Article and applicable provisions of the Zoning Ordinance, the most restrictive shall govern.

10-1.3 Approved Materials and Methods of Installation

The provisions of this Article are not intended to prevent the use of any equipment, material or method of installation not specifically prescribed by this Article provided the Planning Board has approved the alternative. The Planning Board may approve any such alternative provided the proposed design provides the approximate equivalence to the specific requirements of this Article and the most recent applicable electrical code.

All foot-candles are to be measured at horizontal level.

10-1.4 Lighting Definitions

Refer to Lighting Definitions in Article II

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10-1.5 Shielding

All outdoor light fixtures except those exempted by Section 10-1.7.1 and those regulated by “Outdoor Illumination of Building, Landscaping” and “Lightings” shall be fully shielded as identified in Table 10-1-1. A fully shielded fixture must be a full cutoff luminaire or a decorative luminaire with full cutoff optics, and is defined as an outdoor lighting that is shielded or constructed so that all light emitted is projected below a horizontal plane running through the lowest part of the fixture. The light source visibility shall be shielded from the adjoining property.

10-1.6 General Lighting Requirements Table

Table 10-1-1

Zoning District	Rules
All Outdoor Lighting (All Zones)	<ol style="list-style-type: none"> 1. Outdoor lighting shall not shine directly into the yard or windows of a residence 2. Outdoor lighting shall be designed, located and mounted at heights no greater than 12 feet above grade for non-cut-off lights, or 25 feet above grade for cut-off lights. 3. No flickering or flashing lights shall be permitted (except seasonal/holiday lighting). 4. All lighting fixtures must be located at least ten feet from property lines defining rear and side yards. <i>Exception:</i> If two adjoining property owners agree, the luminary may be placed on the property line. 5. Lighting fixtures in scale with pedestrian activities shall provide for uniform distribution of lighting to produce minimal shadows. 6. All outdoor lighting shall be designed and located such that the maximum illumination measured in foot-candles at the property line shall not exceed .3 foot-candle for property lines adjacent to residential zoning, and 2.0 foot-candles for property lines adjacent to nonresidential zoning.
Public or Private Recreational Facilities: PI: Public & Institutional	<p>Primary Playing Areas. Where playing fields or other recreational areas are to be illuminated, lighting fixtures shall be specified in the Lighting Plan, mounted and aimed so that the illumination falls within the primary playing area (may exceed 20 feet) and immediate surroundings so that no direct light illumination is directed off site.</p> <p>Recreational Parking Areas. Lighting for these parking areas shall meet the requirements identified in Table 10-1-1 for All Parking Lots.</p>

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<p>Outdoor Illumination of Building, and Landscaping (All Zones)</p>	<p>The unshielded outdoor illumination of any building or landscaping that causes direct or reflective glare at the normal viewing positions is prohibited.</p> <p>Light fixtures used to light buildings and landscaping shall be selected, located, aimed, and shielded so that direct illumination is focused exclusively on the building façade, plantings, or other site features and away from adjoining properties and the street right-of-way.</p> <p>Wall packs on buildings may be used at entrances to a building to light unsafe areas. They are not intended to draw attention to the building or provide general building or site lighting. “Wall Packs” on the exterior of the building shall be fully shielded (true cut-off type--bulb or light source not visible from off-site) to direct the light downward and be of low wattage (preferably 100 watt or lower). Other accent lighting projected onto buildings may be allowed provided that it is approved through the development plan process.</p>
<p>Lighted Signs (All Zones)</p>	<p>Sign classifications:</p> <p>Direct Lighting Signs- which are illuminated by internal light sources, such as HID, fluorescent, incandescent or lamps of luminous tubing</p> <p>Indirect/Floodlighted Signs- are those such as painted bulletins or panels on a building or at ground level, with a solid background (wood, brick, stucco, etc...) fixtures used to illuminate these signs can be ground mounted or mounted on top of the sign unit and shall comply with all of the shielding requirements as detailed in Table 10-1-1. Wattage Range for signs is 70 – 100.</p> <p>Refer to Whitsett Development Ordinance 7-1, Sign Regulations for permitted use.</p> <p>Maximum Footcandle for a sign is 25, not to exceed a 25 foot diameter from the sign face.</p>
<p>Gasoline Station/Convenience Store Aprons and Canopies. Building Accent Canopies.</p>	<p>a. The lighting fixture bulbs shall be recessed into a canopy ceiling so that the bottom of the fixture is flush with the ceiling so that light is restrained to no more than 85 degrees from vertical as shown in Figure 1.</p> <p>b. As an alternative to recessed ceiling lights, indirect lighting may be used where the light is directed upward and then reflected down from the underside of the canopy. In this case, light fixtures shall be shielded so that direct illumination is focused exclusively on the underside of the canopy.</p>

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<p>(All Zones)</p>	<p>c. Lights shall not be mounted on the top or sides (facia) of the canopy, and the sides of the canopy shall not be illuminated <i>internally or externally</i>.</p> <p>d. The lighting of the new facilities (pump islands and under canopies) shall have a minimum of 1.0 foot-candle at grade, and the average horizontal illumination cannot exceed 10 foot-candles at grade level, subject to a uniformity ratio (ratio of average to minimum illuminance) no greater than 4:1.</p> <p>(Refer to Figure 1) Canopies used for building accents over doors, windows, etc. shall not be internally lit (i.e., from underneath or behind the canopy). <i>Luminaires may be placed within or beneath the canopy for downlighting purposes, providing the luminaires do not illuminate the canopy itself.</i></p>				
<p>All Parking Lots, Loading and Display Areas (All Zones)</p>	<p>This lighting requirement applies to townhouses and multi-family, educational, institutional, commercial recreation, public, commercial business and retail, motor vehicle related, wholesaling, and limited and general industrial use categories identified within the Zoning Ordinance.</p> <p>Parking lot lighting fixtures of more than 2,000 lumens shall be cutoff fixtures.</p> <p>For parking lots the minimum light level shall be no less than .5 foot-candles. The average foot-candle maintained to the minimum foot-candle ratio shall be no greater than 4:1 (upper to lower limits). The upper limit for the light level shall not exceed 8 foot-candles. All foot-candles are to be measured at ground level. General parking lot lighting shall not exceed a maintained average of 4 foot-candles.</p> <p>Lighting for all parking, display and loading areas shall not exceed an average horizontal illumination level of 5.0 foot-candles. All lighting fixtures serving these areas shall be cut-off fixtures as defined by the Illuminating Engineering Society of North America (IESNA); - RP-33</p> <p>Maximum Mounting Height*</p> <table border="0" style="margin-left: 40px;"> <tr> <td style="padding-right: 20px;">Residential:</td> <td>12 foot for freestanding 20 feet on structures</td> </tr> <tr> <td>Non-Residential:</td> <td>25 feet</td> </tr> </table> <p>* Height is measured from the ground surface to the bottom of the lighting fixture.</p>	Residential:	12 foot for freestanding 20 feet on structures	Non-Residential:	25 feet
Residential:	12 foot for freestanding 20 feet on structures				
Non-Residential:	25 feet				
<p>Mercury Vapor AG, RS Zones</p>	<p>The installation of mercury vapor fixtures is prohibited in all zones, except for agricultural buildings, paddocks and similar use areas in AG and RS zoning districts. For residential structures on agricultural property, lighting must be</p>				

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	full cut-off fixtures, or retrofitted with, for example, the Hubble SkyCap and illumination shielded downward.
Metal Halide lights RS	Use of metal halide lights is banned for residential yard lighting.
Street Lighting	The placement of street lighting fixtures in residential areas shall be at 160 foot intervals and at each intersection unless: <ul style="list-style-type: none"> a. The roadway length is less than 200 feet, a street light is placed at the intersection, and no natural features create a problem, in which case a street light will not be required at the end of the street; or b. The vertical and horizontal street alignment or natural features necessitate shorter spacing intervals.

10-1.7.1 Exemptions

1. Incandescent lights 60 Watts and under are not a regulated item. Above 60 Watts is subject to this ordinance.
2. Nonconforming Fixtures. Outdoor light fixtures installed prior to the effective date of this Article are exempt from the provisions of this Article, provided, however, that no change in use, replacement, and structural alteration of outdoor light fixtures shall be made unless it thereafter conforms to the provisions of this Article.
3. Lighting which is not subject to this chapter by state or federal law.
4. Lighting of the United States of America or North Carolina flags or other non-commercial flags expressing constitutionally protected speech. ***Proper shielding is still required as per 10-1.6***
5. Temporary or civic uses.
6. Special Conditions. The Planning Board may grant an exemption to the requirements of Section 10-1.6, Table 10-1-1 only upon a written finding that there are conditions warranting the exemption, and that there are no conforming fixtures that would suffice.
7. Construction and Emergency Lighting. Lighting necessary for construction or emergencies is exempt from the provisions of this Article, provided said lighting is temporary and is discontinued immediately upon completion of the construction work or abatement of the emergency necessitating said lighting.
8. Lighting associated with agricultural use structures, such as a barn, paddock area. Residential buildings and parking associated with a farm or other agricultural uses are not exempted from the lighting requirements contained herein.
9. Standard 100 watt high pressure sodium residential yard lights installed by Duke Energy on a pole with a maximum height of 30 feet.

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10-1.7.2 Prohibitions

1. The use of laser source light, search lights, or any similar high intensity light for outdoor advertising or entertainment, when projected above the horizontal is prohibited.

10-1.8 Applications

1. Any person submitting a site plan or applying for a building, electrical or sign permit that includes installation of outdoor lighting fixtures, shall, as a part of said application, submit a lighting plan that shows proposed work will comply with this Ordinance. The plan should be submitted to the Whitsett Town Administrator/Planning Board.
2. The lighting plan application shall include at least the following:
 - a. A site plan drawn to scale showing building(s), landscaping, parking areas and proposed exterior lighting fixtures;
 - b. Location of post, canopy, supports and light fixtures, including the height of each fixture, for any building, structure, parking, display and loading areas;
 - c. Specifications of the illuminating devices, lamps, supports, and other devices, including designation as Illuminating Engineering Society of North America (IESNA) “cut-off” fixtures. This description may include, but is not limited to, manufacturers catalog cuts and drawings including sections where required;
 - d. Plan shall show locations of all pole mounted and building mounted fixtures and a numerical grid of lighting levels, in foot-candles, that the fixtures will produce on the ground (***Isofootcandle reading***). The ***Isometric*** report will indicate the minimum and maximum foot-candle levels within the lighted area of the site. The minimum (lowest number) is usually at the outer edges of the illuminated area or between two fixtures. The average light level is determined by adding the foot-candle value of all the points in the grid and dividing by the total number of points. Pole mounted fixtures should also be in compliance with wind-loads/epa (effective projected area) per the ISOTACH Wind Map.
 - e. Locations of all pole mounted and building mounted fixtures and a numerical 10-foot by 10-foot grid of lighting levels, (20-foot by 20-foot grid for parking lots and playing fields) in foot-candles, both initial and maintained, that the fixtures will produce on the ground (Photometric report). The Photometric report will indicate the minimum, maximum and average foot-candle levels with the lighted areas of the site. The average light level shall be determined by adding the foot-candle value of all the points in the grid and dividing by the total number of points. Location, dimensions and details of proposed clubhouses, pools, tennis courts, tot-lots and other common area recreation facilities must also be shown. (See Figure 3)

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- f. An isolux lighting plan is required for site plan approval that indicates the foot-candles at grade by contour diagram or grid points that cover the site. The Town of Whitsett can waive this requirement for small independent projects on less than an acre, if the fixture types are specified on the plan.
 - g. This information is available from the manufacturer of the specified fixture. (Refer to Figure 3 for an example of this report style).
3. The above required plans and descriptions shall be sufficiently complete to enable the Town Administrator/Planning Board to readily determine whether compliance with the requirements of this Article will be secured. If such plans and descriptions cannot enable this ready determination, by reason of the nature or configuration of the devices, fixtures or lamps proposed, the applicant shall submit evidence of compliance.

10-1.9 Issuance of Permit for Lighting

The owner of a lot requesting lighting improvements shall first obtain a Development Clearance Certificate from the Town of Whitsett, followed by application for a building permit from the Guilford County Planning Department. The County will review the construction plan submitted for conformance with the regulations contained in the Town of Whitsett lighting ordinance.

For all non-residential installations, a certified lighting professional provided by the project applicant shall perform a foot-candle measurement after the installation of all fixtures. Upon determination by the Whitsett Enforcement Officer that the lighting conforms with the outdoor lighting ordinance, a letter of compliance will be issued by the Whitsett Town Council to the Guilford County Planning Department, whereby the County will issue a certificate of occupancy.

10-1.10 Alternative Lighting Methods

An applicant may propose alternative lighting solutions due to site specific circumstances. The Whitsett Planning Board may approve alternative methods submitted based on the Board's finding that proposed solutions are of equal or better performance.

10-1.11 Appeals

Except for street lighting within the right-of-way and for temporary exemptions, as provided in Section 10-1.7, any applicant's appeal of a decision made by the Whitsett Enforcement Officer shall be appealed to the Whitsett Planning Board with final resolution by the Whitsett Town Council.

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10-1.12 Existing Lighting on Effective Date

A. **Lighting Existing on Effective Date:** Outdoor light fixtures installed prior to the effective date of this Article are exempt from the provisions of this Article; provided, however, that no change in use, replacement, and structural alteration of outdoor light fixtures shall be made unless it thereafter conforms to the provisions of this Article. Lighting that would be prohibited by this Section but was in existence on June 12, 2007, and was constructed in accordance with the applicable laws and ordinances in effect on the date of construction, but by reason of its height, location, design, or construction is not in conformance with the requirements of this Section, are exempt from the provisions of this Article, and may remain in place and be maintained indefinitely, subject to compliance with the following:

- i. Normal maintenance of such lighting shall be allowed, including nonstructural repairs such as repainting or electrical repairs, and incidental alterations which do not increase the degree or extent of the nonconformity.
- ii. No structural alteration, enlargement or extension of such lighting shall be allowed.
- iii. No relocation of such lighting upon the premises shall be allowed unless to correct a location violation.
- iv. If damage to such lighting from any cause is less than fifty(50%) percent of either the original or replacement value, whichever is less, the lighting may be rebuilt or repaired to its original condition in its original location and may continue to be displayed.
- v. Owners of existing outdoor lighting that shines directly into the yard or windows of a residence shall make every effort to adjust lighting direction so as to correct the spill-over light, if requested to do so.

B. **Lapse of Pre-existing Lighting Rights:** Pre-existing lighting rights shall lapse automatically and the nonconforming lighting shall be brought into compliance with this Section or removed if one of the following occurs:

1. If such lighting is damaged from any cause to an extent of fifty (50%) or more of either the original or replacement value, whichever is less;
2. If there is a change in the lighting such that a lighting or electrical permit is required; or
3. If the business activity on the premises is discontinued for a period of ninety (90) days or more.

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- C. **Map Amendment or Text Amendment:** Any lighting that is made nonconforming by reason of zoning map amendment or any subsequent amendment to the text of this Section, shall be removed or brought into compliance as provided in Section 10-1.12 (A) (Lighting Existing on the Effective Date).

10-1.13 Compliance With the Ordinance

- A) **Removal of Lighting:** Lighting for which a permit has lapsed, or has been revoked, or for which the time allowed for the continuance of a nonconforming light has expired, shall be removed.
- B) **Lightings in Right-of-Way:** Any lighting installed or placed on public property or rights-of-way, except in compliance with this Section or under an encroachment agreement with the North Carolina Department of Transportation, shall be forfeited to the public and be subject to confiscation.
- C) **Unsafe Lighting:** Any lighting which is unsafe or insecure, or is a menace to the public shall be removed after due notice by the Enforcement Officer has been given.
- D) **Deteriorated or Abandoned Lighting:** Any lighting which has been abandoned or which has not been properly maintained, to include cleaning and replacement of damaged parts, shall be removed after due notice by the Enforcement Officer has been given.
- E) **Lighting Installed Without Permit:** Any lighting which has been installed in violation of the NC Building Code or in violation of this Ordinance shall be removed after due notice by the Enforcement Officer has been given.

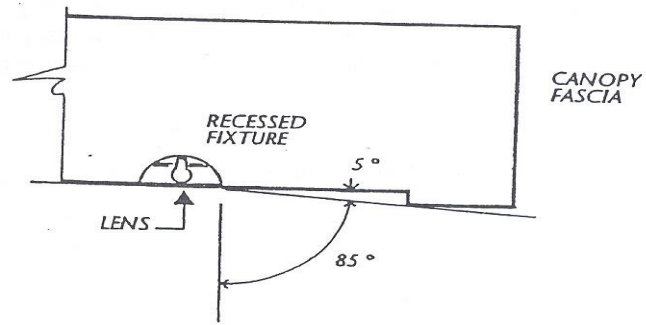
10-1.14 Enforcement

See Article IX of the Whitsett Development Ordinance.

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FIGURE 1

GASOLINE STATION/CONVENIENCE STORE APRONS AND CANOPIES

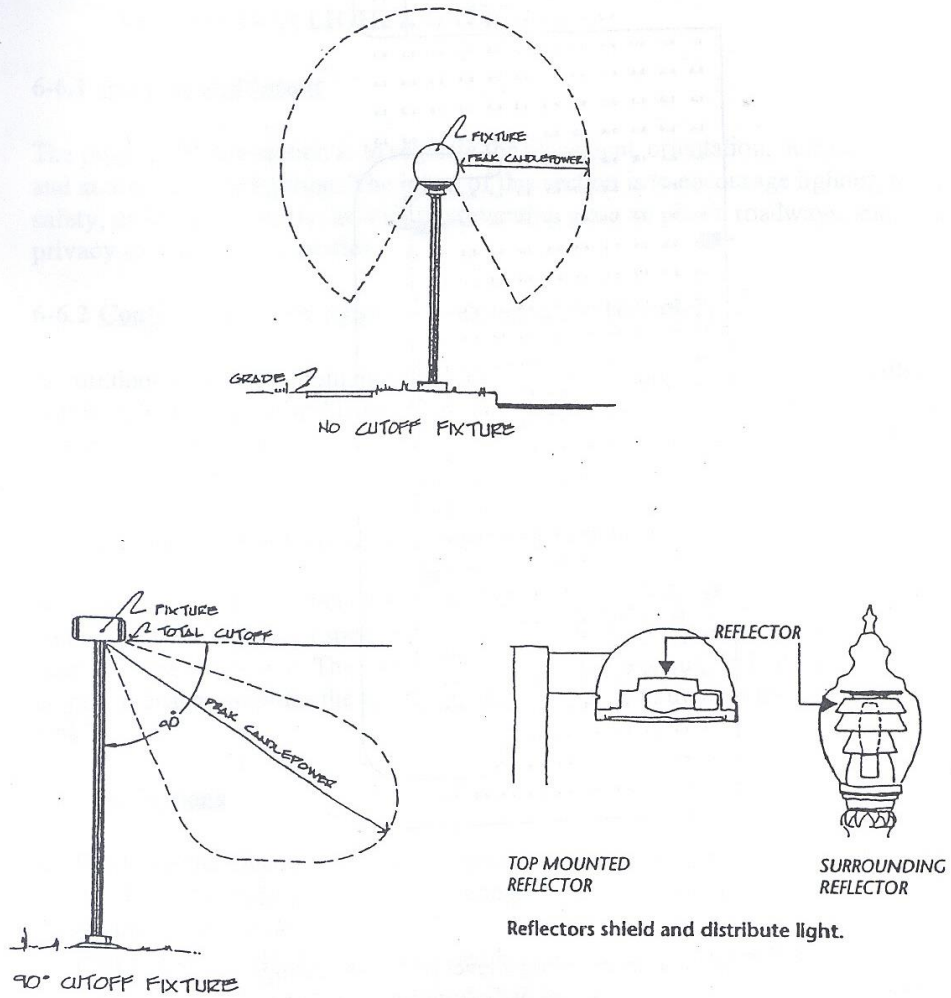


Gas pump canopy.

Source: *Outdoor Lighting Manual for Vermont Municipalities*, Chittenden County Regional Planning Commission, May 1996, PTI Publications Center (Publication Order Number (DG/95-308).

FIGURE 2

FIGURE 2
CUTOFF FIXTURES

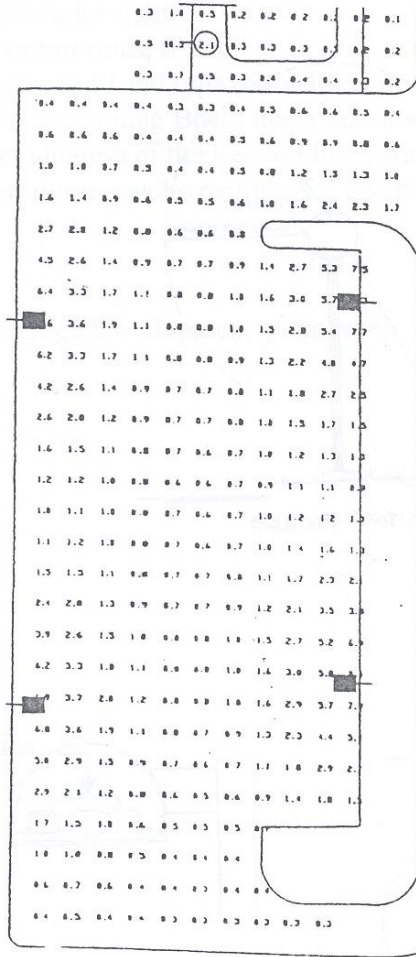


Source: *The Outdoor Lighting Pattern Book*, Lighting Research Center, Rensselaer Polytechnic Institute, 1996, ISBN 0 07 037188-1, Library of Congress Card Catalog Number 96-41377.

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FIGURE 3

FIGURE 3
COMPUTER GENERATED LIGHT LEVEL GRID EXAMPLE FOR PARKING LOT LIGHTING PLANS



Computer generated light level grid, with readings in tenths of footcandles.

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Figure 4 ISOTACH Wind Map

30 YEAR MEAN RECURRENCE ISOTACH WIND MAP [1994 AASHTO]

This map has been included in this catalog in order to aid in the selection of a pole with regard to its geographic location. Although a less stringent 25-year mean recurrence map is sometimes used by other pole suppliers, it is our belief that the added measure of assurance offered in the use of this map deems it more desirable.

NOTE: This wind map is intended as a general guideline only. Consult local engineering standards to determine the exact wind loading condition for your application.

ISOTACH WIND MAP

