

SENATE No. 2493

The Commonwealth of Massachusetts

In the Year Two Thousand Ten

An Act to reduce light pollution.

Be it enacted by the Senate and House of Representatives in General Court assembled, and by the authority of the same, as follows:

1 SECTION 1. Chapter 85 of the General Laws is hereby amended by inserting after
2 section 36 the following sections:-

3 Section 37. As used in sections 37A to 37C, inclusive, the following words shall, unless
4 the context clearly requires otherwise, have the following meanings:-

5 "Direct light", light emitting generally in a downward direction by a lamp, off a reflector,
6 or through a refractor of a luminaire.

7 "Fully shielded luminaire", a luminaire that allows no direct light from the luminaire
8 above a horizontal plane through the luminaire's lowest light-emitting part, in its mounted form.

9 "Glare", direct light emitted by a luminaire that causes reduced visibility of objects or
10 momentary blindness.

11 "Illuminance", the luminous power incident per unit area of a surface, as measured in lux
12 (lumens per square meter) or foot-candles (lumens per square foot).

13 "Lamp", the component of a luminaire that produces light.

14 "Light pollution", artificial light directed, reflected, or scattered upward into the
15 atmosphere.

16 "Light trespass", light emitted by a luminaire that shines beyond the boundaries of the
17 property on which the luminaire is located.

18 "Lumen", a specific standard unit of measurement of luminous flux.

19 "Luminaire", a complete lighting unit, including a lamp or lamps together with the parts
20 designed to distribute the light, to position and protect the lamps, and to connect the lamps to the
21 power supply.

22 "Municipal funds", any bond revenues or any money appropriated or allocated by the
23 governing body of a town or city within the Commonwealth.

24 "Outdoor light fixtures", outdoor artificial illuminating devices, permanently installed or
25 portable, used for flood-lighting, roadway and area lighting, general illumination, or
26 advertisement.

27 "Permanent outdoor luminaire", any fixed luminaire or system of luminaires that is
28 outdoors and that is intended to be used for seven days or longer.

29 "Roadway lighting", permanent outdoor luminaires that are specifically intended to
30 illuminate roadways for automotive vehicles.

31 "State funds", any bond revenues or any money appropriated or allocated by the General
32 Court.

33 Section 37A. (a) No state or municipal funds shall be used to install any new permanent
34 outdoor luminaire or to replace an existing permanent outdoor luminaire unless the following
35 conditions are met:

36 The new or replacement luminaire is a fully shielded luminaire when the rated output of
37 the lamp is greater than one thousand eight hundred (1800) lumens;

38 If a lighting recommendation or regulation applies, the minimum illuminance specified
39 by the recommendation or regulation is used;

40 If no lighting recommendation or regulation applies, the minimum illuminance adequate
41 for the intended purpose is used with consideration given to recognized standards, including, but
42 not limited to, recommended practices adopted by the illuminating engineering society of North
43 America (IESNA);

44 For roadway lighting unassociated with intersections of two or more streets or highways,
45 a determination is made by the department of highways that the purpose of the lighting
46 installation or replacement cannot be achieved by installation of reflectorized roadway markers,
47 lines, warnings or informational signs, or other passive means; and

48 Adequate consideration has been given to the conservation of energy and to the
49 minimization of glare, light pollution, and light trespass.

50 The requirements of this section shall not apply in any of the following circumstances,
51 settings or locations:

52 a federal law, rule or regulation preempts state law;

53 the outdoor lighting fixture is used on a temporary basis by emergency personnel
54 requiring additional illumination for emergency procedures or used by repair personnel on a
55 temporary basis for road repair;

56 navigational lighting systems at airports and other lighting necessary for aircraft safety;

57 special events or situations that may require additional illumination, including, but not
58 limited to, sporting events and the illumination of historic structures, monuments, or flags;
59 provided however, that all such illumination shall be selected and installed to shield the lamp
60 used from direct view to the greatest extent possible, and to minimize light pollution and light
61 trespass;

62 any urban area where there is high night-time pedestrian traffic which has been examined
63 by an engineer employed by the commonwealth and experienced in outdoor lighting and deemed
64 to be an area where the installation of luminaires other than those that are fully shielded is
65 necessary for safety;

66 a state prison, county house of correction or county jail; or

67 when a compelling safety interest exists that cannot be addressed by any other method.

68 (b) No public utility company may install or replace a permanent outdoor luminaire for
69 roadway lighting, if the cost of operating such luminaire is paid for by municipal funds, unless:

70 the luminaire is designed to maximize energy conservation and to minimize light
71 pollution, glare and light trespass;

72 the luminaire's illuminance is equal to the minimum illuminance adequate for the
73 intended purpose of the lighting; and

74 for a luminaire with a rated output of more than 1800 lumens used on municipal roads,
75 such luminaire is a full cutoff luminaire.

76 (c) Off-street business and residential lighting may not direct spotlights of greater than
77 1800 lumens onto roadways in such a manner that would visually impede drivers.

78 Section 37B. The division of energy resources, in consultation with the department of
79 highways, shall promulgate regulations to implement and enforce this section, including a system
80 to ensure that the use of state funds for roadway lighting complies with the requirements set forth
81 herein. Said regulations shall include the establishment of a waiver process, to be administered
82 by the secretary of administration and finance or his designee, whereby a state agency, division
83 or department may apply for and may be granted an exemption by said secretary from the
84 requirements of this section on the grounds that a bona fide operational, temporary, safety or
85 specific aesthetic need exists to an extent that warrants such an exemption or upon the
86 establishment by said agency, division or department that the installation and use of the
87 permanent outdoor luminaries required by this section will not be cost effective over the
88 expected use life of said luminaries.

89 Section 37C. The department of highways shall: (a) review and update its warranting and
90 other criteria for roadway lighting, to demonstrate that its current standards and procedures
91 conform to commonly accepted best practices; (b) explore how costs can be reduced by replacing
92 existing fixtures luminaires with lower-wattage, fully shielded luminaires or by eliminating
93 roadway lighting altogether where appropriate; (c) report its findings to the department of energy
94 resources annually beginning on August 31, 2012.

95 SECTION 2. The provisions of this act shall take effect as of November 1, 2011.