

HOUSE No.

The Commonwealth of Massachusetts

PRESENTED BY:

Mary E. Grant

To the Honorable Senate and House of Representatives of the Commonwealth of Massachusetts in General Court assembled:

The undersigned legislators and/or citizens respectfully petition for the passage of the accompanying bill:

An Act to Promote Energy Efficient Lighting, Conserve Energy, Regulate Outdoor Night Lighting, and Reduce Light Pollution.

PETITION OF:

NAME:

Mary E. Grant

DISTRICT/ADDRESS:

6th Essex

The Commonwealth of Massachusetts

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In the Year Two Thousand and Nine
—————

AN ACT TO PROMOTE ENERGY EFFICIENT LIGHTING, CONSERVE ENERGY, REGULATE OUTDOOR NIGHT LIGHTING, AND 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, as appearing in the 2002 Official Edition, is hereby amended
2 by adding at the end thereof the following new sections:

3

4 Section 37. As used in Section 37A, the following words shall, unless the context clearly requires
5 otherwise, have the following meaning:

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

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

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

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

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

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

16 "Light trespass", light emitted by a luminaire that shines beyond the boundaries of the property on
17 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 designed to
20 distribute the light, to position and protect the lamps, and to connect the lamps to the power
21 supply.

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

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

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

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

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

32 Section 37A. 1. No state or municipal funds shall be used to install any new permanent outdoor
33 luminaire or to replace an existing permanent outdoor luminaire unless the following conditions are
34 met:

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

37 (b) If a lighting recommendation or regulation applies, the minimum illuminance specified by the
38 recommendation or regulation is used;

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

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

47 (e) Adequate consideration has been given to the conservation of energy and to the minimization of
48 glare, light pollution, and light trespass. The requirements of this section shall not apply in any of
49 the following circumstances, settings or location:

50 (1) a federal law, rule or regulation preempts state law;

51 (2) the outdoor lighting fixture is used on a temporary basis by emergency personnel requiring
52 additional illumination for emergency procedures or used by repair personnel on a temporary
53 basis for road repair;

54 (3) navigational lighting systems at airports and other lighting necessary for aircraft safety;

55 (4) special events or situations that may require additional illumination, including, but not

56 limited to, sporting events and the illumination of historic structures, monuments, or flags;

57 provided however, that all such illumination shall be selected and installed to shield the lamp

58 used from direct view to the greatest extent possible, and to minimize light pollution and light

59 trespass;

60 (5) any urban area where there is high night-time pedestrian traffic which has been examined by

61 an engineer employed by the Commonwealth and experienced in outdoor lighting and deemed

62 to be an area where the installation of luminaires other than those that are fully shielded is

63 necessary for safety;

64 (6) a state prison, county house of correction or county jail; or

65 (7) when a compelling safety interest exists that cannot be addressed by any other

66 method.

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

69 (a) the luminaire is designed to maximize energy conservation and to minimize light pollution, glare and
70 light trespass;

71 (b) the luminaire's illuminance is equal to the minimum illuminance adequate for the intended purpose
72 of the lighting; and

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

75 3. Light trespass onto environmentally sensitive habitats, as determined by the department of
76 environmental protection, shall be limited or restricted by taking into account potential environmental
77 impact.

78 4. Off-street business and residential lighting may not direct spotlights of greater than 1800 lumens
79 onto roadways in such a manner that would visually impede drivers.

80

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

91

92 Section 37C. The department of highways shall:

93 (1) review and update its warranting and other criteria for roadway lighting, to demonstrate that its
94 current standards and procedures conform to commonly accepted best practices;

95 (2) explore how costs can be reduced by replacing existing fixtures luminaires with lower-wattage, fully
96 shielded luminaires or by eliminating roadway lighting altogether where appropriate;

97 (3) report its findings to the department of energy resources annually beginning on August 31, 2009.

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99 SECTION 2. The provisions of this act shall take effect as of November 1, 2009.