



City of Cambridge

O-4.

IN CITY COUNCIL
April 7, 2003

COUNCILLOR MAHER
VICE MAYOR DAVIS
COUNCILLOR DECKER
COUNCILLOR GALLUCCIO
COUNCILLOR MURPHY
COUNCILLOR REEVES
COUNCILLOR SIMMONS
MAYOR SULLIVAN
COUNCILLOR TOOMEY

ORDERED: That the petition to amend the Zoning Ordinance to regulate exterior lighting be refiled.

In City Council April 7, 2003.
Adopted by the affirmative vote of nine members.
Attest:- D. Margaret Drury, City Clerk.

A true copy;

A handwritten signature in cursive script, reading "D. Margaret Drury".

ATTEST:-

D. Margaret Drury
City Clerk

ORDER # 4

Refiling of the exterior lighting
amendment to the Zoning
Ordinances.

Councillor Maher

ORDER ADOPTED.

In City Council April 7, 2003



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CITY OF CAMBRIDGE • EXECUTIVE DEPARTMENT

Robert W. Healy, City Manager

Richard C. Rossi, Deputy City Manager

February 24, 2003

To the Honorable, the City Council:

In response to Awaiting Report Item No. 02-32, regarding a report on controlling exterior lighting, City Electrician George Fernandes and Assistant City Manager for Community Development Beth Rubenstein report the following:

Background

Outdoor lighting is used for a wide variety of purposes. These include safety, security, aesthetic highlighting, decoration, advertising, and sign illumination. Choices made in the selection of lighting fixtures and their installation involve consideration of a complex variety of factors including light quality and color, shadow effects, glare, lighting levels, sky glow, and energy use.

The visible glow of light over cities and other developed areas is the result of exterior lighting shining into the sky and light spilling from building interiors. Normally, about 2500 stars should be visible in the night sky. However, because of light pollution, only about 200 to 300, and often less, are visible in urban areas.

In a metropolitan area such as Boston, sky glow is caused by the cumulative effect of lighting in all the area's communities. In order to significantly reduce sky glow in the metropolitan Boston area, it would be necessary to involve all of the jurisdictions in any action.

City Lighting Policy

The City directly controls lighting located within the public right-of-way and on municipal property. Policies have been established to discourage light pollution and encourage energy efficiency. The majority of the City street lighting fixtures (98%) are cut-off style fixtures that direct most of the lighting to the ground. (Exceptions consist of a few locations where fixtures have not been changed out to the cut-off type, or areas where a particular type fixture was selected for aesthetic reasons and was not available in cut-off type.) To this end the City is ahead of other cities in the area. During the 1980s and 1990s, the City converted its street lighting from mercury vapor to high-pressure sodium. This conversion was basically an energy saving step, but also allowed for lighting levels to be increased, while selecting a cut-off type fixture in almost all areas of the City.

The Electrical Department believes that most lighting in the public way whether installed by private parties, other government agencies, or the City should be a cut-off type. Many manufacturers today have fixtures of this type, so cut-off type fixtures have become easier to procure.

Light pollution also emanates from illumination of private buildings and property. The sources include exterior lighting used for security, safety, commercial (e.g., lighting store fronts), and aesthetic reasons (e.g., uplighting of building facades) as well as interior lighting that spills out through windows (e.g., office buildings).

The City currently regulates lighting in residential districts through article 7.20 of the Zoning Ordinance, which prohibits outdoor floodlighting or decorative lighting in Residence A, B, C, and C-1 districts. The ordinance states:

“In Residence A, B, C, and C-1 districts no outdoor floodlighting or decorative lighting, except lighting primarily designed to illuminate walks, driveways, outdoor living areas, or outdoor recreational facilities, and except temporary holiday lighting in use for not longer than a four week period in any calendar year, shall be permitted. Any permanent lighting permitted by the preceding sentence shall be continuous, indirect, and installed in a manner that will prevent direct light from shining onto any street or adjacent property.”

Ordinances in Other Municipalities

There are different approaches to reduce light pollution, including ordinances, guidelines, and education. We have examined several of the ordinances cited in the Council Order. All the ordinances are based in zoning and are administered by planning commissions and planning departments. A significant motivation behind the Flagstaff, Arizona ordinance appears to be the prevention of light interference with nearby astronomical observatories. We surmise that unlike the metropolitan Boston area with many separate jurisdictions, Flagstaff's local government is able to control most of the sources of lighting in its geographic area.

Taos, New Mexico acted on the authority of state legislation, the New Mexico Night Sky Protection Act, which also aims to prevent the sky glow problem.

Raleigh, North Carolina's ordinance takes a regulatory approach that depends on extensive documentation of light emission levels, technical specifications for lighting types, field measurements, and enforcement based on visual inspection and measurement. There is also a process for seeking approval of alternative lighting configurations that is intended to provide a flexible regulatory system. The process requires detailed review by the city's Planning Commission and department.

Recommendation

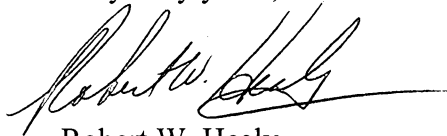
The regulation of outdoor lighting is complicated. Issues include how to define an appropriate level of lighting for specific uses, when to allow exemptions for uplighting of building facades, when to prohibit specific types of lighting (e.g., mercury vapor lights), establishing a design

review process and plan requirements, and setting enforcement procedures. Considering the City's inability to affect the regional sky glow problem and the existence of provisions for residential areas, we recommend an approach that would signal the City's interest in unobtrusive lighting through the Project Review provisions of the Zoning Ordinance. Outdoor lighting could be added into Section 19.33 of the Citywide Urban Design Objectives for new development projects. Specifically, Section 19.33, which details desirable urban design objectives, could be amended to include:

“(8) Outdoor lighting which is designed to provide the minimum lighting necessary to ensure adequate safety, night vision, and comfort, while minimizing light pollution.”

With this provision in place, the City would be encouraging project proponents to use cut-off style and energy efficient light fixtures and to prevent overlighting.

Very truly yours,

A handwritten signature in black ink, appearing to read "Robert W. Healy", with a long horizontal flourish extending to the right.

Robert W. Healy
City Manager

RWH/mec

S-129

Consent Agenda #3

Awaiting Report Item Number 02-32, regarding a report on controlling exterior lighting.

In City Council February 24, 2003

**REFERRED TO ORDINANCE
COMMITTEE.**

*Copies
sent
me*

May 1, 2003

**PLACED ON FILE DUE
TO HEARING NOT BEING
HELD IN THE REQUIRED
AMOUNT OF TIME.**

**SEE ORDER #4 OF
APRIL 7, 2003 REFILEING
THE PETITION.**