

Report of the Streetlighting Committee to the Burlington Electric Commission

Committee Members:

Chair: Jean O'Sullivan (member of the BEC)

Bob Herendeen (member of the BEC)

Ron McGarvey (citizen member)

David Pope (citizen member)

The Committee met several times through the fall of 2013 with the sole purpose of developing a streetlighting policy for Burlington Electric Department.

Included in this report are:

1. photos of street lights currently being used,
2. current practices that are now being used at BED, and
3. a copy of the draft policy, which was unanimously approved by the committee.

Current street lighting procedures at BED

Responsibility for Lighting City Streets:

Burlington Electric Department (BED) has been tasked by the Burlington City Council with the responsibility to light the accepted city streets of Burlington.

Street Lighting Standard:

Current street lighting practices at BED are the following: Street lighting has been designed to conform to the Illuminating Engineering Society (IES) recommendation for lighting levels (footcandles) and uniformity (contrasts between bright and dark spots).

All new non light-emitting diode (LED) street light fixtures shall be full cut off and energy efficient. All LED fixtures shall be rated with the Backlight, Uplight, and Glare (BUG) system with color temperature of 4,000 K. Street lighting fixtures are purchased based on performance, durability, workability and cost. When evaluating the performance of the street light fixture, BED creates a road template and evaluates the light level on the street, sidewalk, and beyond the sidewalks. The goal of the evaluation is to choose an energy efficient fixture that provides adequate lighting on the street and sidewalk with the “lowest” light spill beyond the sidewalks.

Standard Street Lighting System:

The street lighting system will consist of an LED cobra head fixture rated according to the BUG system and mounted at approximately +/- 30 feet on an existing utility pole or on a new 35 foot wooden/fiberglass pole. BED will supply power via aerial service for streets with aerial electrical circuits and via underground service where BED’s electrical circuits are underground. Based on current technology, this standard system is the least-cost option available.

Non-Standard List of Fixtures and Poles:

The following non-standard fixtures and poles have been approved by BED:

- 1) Lumec L-70 Octagonal Lantern
- 2) Lumec Domus 50 series LED fixtures
- 3) Lumec Renaissance 20 series LED fixtures

Non-Standard Street Lighting System:

Occasionally the street lighting goals on certain city streets are not accomplished through the standard street lighting poles and fixture. In such situations an alternative system may be installed provided that the IES recommendations are met. In cases in which a customer (other than the City) or a group of customers request a non-standard street lighting system, the customer or the group of customers shall be responsible for the cost in excess of the standard system.

Existing Streets with Decorative Fixtures:

Existing decorative fixtures may not meet the “full” cut-off fixture requirement, may not be rated with the BUG requirement, may not be energy efficient fixtures, and may not be available for replacement. Also, the height of the poles and intensity of the lights may be too low to meet the IES requirement on the street. When preexisting decorative fixtures need replacement they are either replaced with the same fixture if available or, if unavailable, those fixtures/poles are swapped out for BED’s standard 35-foot wooden/fiberglass poles and LED cobra head fixtures.

Street Lighting Process

BED follows the following street lighting process:

- a) When a street light fixture fails on a street that doesn't meet the IES lighting recommendation, the fixture is replaced with an equivalent output LED full "cutoff" cobra head fixture.
- b) When BED's electrical system rebuild/upgrade project is underway, BED will use this opportunity to change out all the lighting and bring the street up to the IES guidelines. This may include replacing fixtures on existing poles or adding new poles and fixtures.
- c) When BED receives requests from customers to check the lighting levels on a street, BED will investigate the lighting request by performing a street lighting study. If the study indicates the lighting level on the street is below the IES recommendations, BED may upgrade by replacing fixtures on existing poles and adding new poles and fixtures. BED shall add this project to the street lighting capital plan and implement it as budget allows. If the study indicates the lighting level meets the IES recommendation, BED shall inform the customer that the street lighting is adequate and meets the IES recommendation. If the study indicates the size of the fixture needs to be reduced to meet IES recommendations, BED will replace lighting fixtures with lower wattage fixtures. BED shall add this project to the street lighting capital plan and implement it as budget allows.
- d) BED maintains a street lighting capital plan that lists the streets where the lighting will be upgraded or new lights will be installed to meet IES recommendations. This plan includes street lighting projects specified by BED, projects driven by the City/State projects, and projects driven by BED's Customers requesting that lighting levels be checked.

Statement of Purpose:

This street lighting policy is to be followed by Burlington Electric Department and the City of Burlington when installing standard street lighting poles and fixtures, and making decisions about the location of decorative poles and fixtures and banners that are attached to the poles. When choosing street lighting energy efficiency will continue to be a very high priority. Burlington will continue to be aware of dark skies goals as a component of lighting policy. This policy will inform citizens of the standards, guidelines and procedures that Burlington Electric Department employs to safely illuminate Burlington streets, adjacent bikeways and pedestrian ways.

Responsibility for Lighting City Streets:

Burlington Electric Department (BED) has been tasked by the Burlington City Council with the responsibility to light the accepted city streets of Burlington.

Street Lighting Standard:

Street lighting in Burlington, Vermont, conforms to the Illuminating Engineering Society (IES) recommendation for lighting levels (footcandles) and uniformity (contrasts between bright and dark spots).

Street lighting fixtures are purchased based on performance, durability, workability and cost. When evaluating the performance of the street light fixture, BED will create a road template and evaluate the light level on the street, sidewalk, and beyond the sidewalks. The goal of the evaluation is to choose an energy efficient fixture that provides adequate lighting on the street and sidewalk with the lowest light spill beyond the sidewalks. LED fixtures will be the standard and shall be rated with the Backlight, Uplight, and Glare (BUG) system with color temperature of 4,000 K. The BUG system was started by IES in 2005 to reduce stray lighting that escapes from an outdoor lighting luminaire.

Standard Street Lighting System:

The street lighting system will consist of an LED cobra head fixture rated according to the BUG system and mounted at approximately 30 feet above the street on an existing utility pole or on a new 35- foot wooden/fiberglass pole. BED will supply power via aerial service for streets with aerial electrical circuits and via underground service where BED's electrical circuits are underground. Based on current technology, this standard system is the least-cost option available.

Decorative Lighting and Banners

When the City designates decorative lighting districts and banner districts the city shall inform BED of such designations.

For decorative lighting districts, BED with advice from the Planning Department will select one decorative lighting fixture and pole that will be used in the gateways and one in the commercial areas. (Pre-existing non-standard decorative lights will be maintained until the stock runs out, at

which point they will be replaced by the standard fixture and pole selected by BED, unless a new district has been named.)

For banner districts, banners will be affixed to the poles using manufacturer's recommendations. BED will install the banners and maintain them. The city shall sign a waiver of liability in regards to the banners.

BED has standard residential and commercial street lighting equipment. All increased costs above the standard amount for both equipment and maintenance of the banners and the decorative fixtures will be borne by the city. When requesting decorative street lighting fixtures and poles, the city will pay the incremental cost in advance in compliance with BED's Street Lighting Tariff.

New Development: Where new development causes the creation of new "accepted City streets", BED will install a standard lighting system.

Street Lighting Process

BED follows the following street lighting process:

- a) BED maintains a street lighting capital plan that lists the streets where the lighting will be upgraded/new lights will be installed to meet IES recommendations. This plan includes street lighting projects specified by BED, projects driven by the City/State projects, and projects driven by BED's customers requesting that lighting levels be checked.
- b) When a street light fixture fails on a street that doesn't meet the IES lighting recommendation, the fixture is replaced with an equivalent output LED cobra head fixture.
- c) When BED's electrical system rebuild/upgrade project is underway, BED will use this opportunity to change out all the lighting and bring the street up to the IES recommendations. This may include replacing fixtures on existing poles or adding new poles and fixtures.
- d) When BED receives requests from customers to check the lighting levels on a street, BED will investigate the lighting request by performing a street lighting study.

If the study indicates the lighting level on the street is below the IES recommendations, the street will be added to BED's street lighting capital plan, and upgrading the lighting to meet IES recommendation will be implemented as budget allows. This may include replacing fixtures on existing poles and adding new poles and fixtures.

If the study indicates the lighting level meets the IES recommendation, BED shall inform the customer that the street lighting is adequate and meets the IES recommendation.

If the study indicates the lighting level on the street could be reduced and still meet the IES recommendations by replacing lighting fixture(s) with lower wattage fixture(s), BED shall add this project to the street lighting capital plan and implement it as budget allows.