

**SHAKOPEE PUBLIC UTILITIES
MEMORANDUM**

TO: John Crooks, Utilities Manager

FROM: Joseph D. Adams, Planning & Engineering Director

SUBJECT: Street Lighting Policy

DATE: March 30, 2017



ISSUE

A draft revised Street Lighting Policy is attached for Commission consideration.

BACKGROUND

The joint Street Lighting Policy has not been updated since 2013. SPUC and City staff have been working with a lighting consultant on a proposed revised policy with more flexible language to accommodate the fast changing specifications and performance features of new LED fixtures for street lighting standards.

The last revision to the policy updated the standard lighting pole material to bronzed aluminum and introduced LED fixtures as the standard fixture for new lighting units. Two styles were adopted for local streets (coach style) and for collector streets (rectilinear).

As the utility and city grew over the past two decades plus, both the number of lighting units and the donated energy cost of street lighting increased substantially. Adopting the latest most energy efficient lighting units and more durable pole materials result in savings in both maintenance and energy costs that help keep electric rate increases down and benefit all utility customers and city taxpayers.

DISCUSSION

This revision removes the technical performance features of the LED fixtures and leaves those to be specified in details that can be revised subject to joint approval by the City Engineer and Utilities Manager without returning to the Council and Commission for further action. Thus, when new and better performing LED fixtures replace older ones staff does not have to request the entire policy is revised. The lighting details can be updated with both the City Engineer and Utilities Manager agreeing on any changes.

Staff and the consultant have been reviewing recent developments and publications on street lighting technology, specifically LED lighting in lieu of an AMA report on the perceived dangers of blue white light, these past several months and the consensus we have reached for our recommendations are reflected in the attached details.

There is somewhat of a public controversy over the AMA report with some groups or individuals demanding changes to street lights to strictly conform to a maximum level of blue white light by requiring fixture specifications to be a maximum 3000 Kelvin Correlated Color Temperature (CCT) level. Staff does not believe in a one size fits all solution and is recommending a 4000 Kelvin CCT specification for collector street lighting fixtures to provide for more visibility in higher traffic areas and a flexible 4000 or 3000 Kelvin CCT fixture for local streets.

REQUESTED ACTION

Staff recommends the Commission adopt the draft revised Street Lighting Policy and coordinate with City staff after Council does the same to ensure consistency should there be any modifications proposed by the Council.

Residential Standard Option 3 - LED Coach Lantern (Full Cutoff)



Current Model – Series 247CL (American Electric Lighting)

\$400 per fixture (material only)

4000K – 72 Watt LED

Lumens per Watt – 92

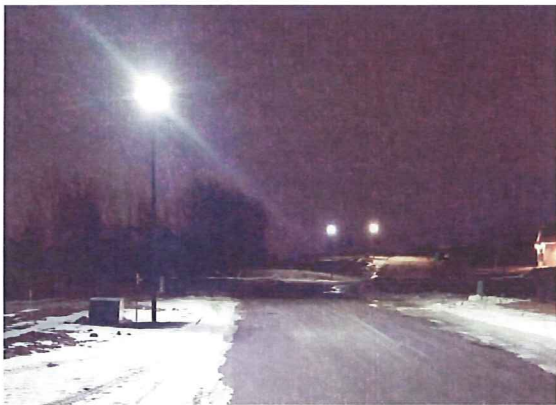
Lumen Output – 6,821 lumens

Light Distribution – Type 3

Dimmable driver option to reduce output as needed

Estimated energy savings over 100W HPS – 52%

Fully complies with Dark-Sky initiatives but directing all light downward. The residential options 1 & 2 are partial cutoff but they have acrylic panels on the sides which help disperse the light and reduce glare. There is, noticeably more glare from the full cutoff as you drive by. The picture below is a full cutoff fixture installed on Meadow Court west of Jennifer Lane in Shakopee.



Collector Standard – LED Rectilinear



Current Model – Roadview LED Series (Phillips LUMEC)

\$590 per fixture (material only)

4000K – 160 Watt LED

Lumens per Watt – 95

Lumen Output – 15,196 Lumens

Light Distribution – Type 3

Dimmable driver option to reduce output as needed

Estimated energy savings over 250W HPS – 47%

Starting in 2013, this fixture has been installed in new subdivisions and as needed for replacements. Staying with a 4000K color on a collector street is recommended for increased color quality and visibility due to higher traffic volume.



Residential Standard Option 1 – LED Coach Lantern

Current Model – Series 247L (American Electric Lighting)

\$400 per fixture (material only)

4000K – 72 Watt LED

Lumens per Watt – 82

Lumen Output – 5,962 lumens

Light Distribution – Type 3 (recommended for residential and collector streets.)

Dimmable driver option to reduce output as needed

Estimated energy savings over 100W HPS – 52%

Starting in 2013, this fixture has been installed in new subdivisions and as needed for replacements. LEDs over HPS have vastly improved not only energy savings but also light distribution using individual LEDs and optics to direct light. We are using a Type 3 distribution (see below for chart of different types) which spreads light evenly to the sides of the fixture, down street instead of radially from the fixture like HPS (Type 5).



Residential Standard Option 2 - LED Coach Lantern (RECOMMENDED)

Current Model – Series 247L (American Electric Lighting)

\$400 per fixture (material only)

3000K – 72 Watt LED

Lumens per Watt – 76

Lumen Output – 5,553 lumens

Light Distribution – Type 3

Dimmable driver option to reduce output as needed

Estimated energy savings over 100W HPS – 52%

Very similar to what is presently being installed. Since the American Medical Association has released recommendations on street lighting to reduce exposure to “blue-white” light, many concerns have been raised as to the color temp and what should be implemented on residential streets. Though slightly less efficient (see lumens per watt above), the light output is similar enough to warrant installing 3000K fixtures in the residential neighborhoods in order to quell concerns from citizens. The picture below helps illustrate how similar the two color temperatures are (the picture was taken on Meadow Lane east of Jennifer Lane in Shakopee where these 3 options were installed as a test case).

