City of Long Beach
Working Together to Serve

Memorandum

Date: February 7, 2017

To: Patrick H. West, City Manager

From: Craig A. Beck, Director of Public Works

For: Mayor and Members of the City Council

Subject: **UPDATE - LED Streetlight Conversion Project**

The City is in the process of converting streetlights from High Pressure Sodium to Light Emitting Diode (LED). The new lights are more energy efficient, reducing consumption by about 45 percent. Approximately 1,750 lights at signalized intersections (traffic safety lights) were converted during 2016. Currently, City Light and Power (CLP) is working to complete conversion of the remaining 24,000 lights in residential and commercial districts.

The conversion of the traffic safety lights (Phase One), was funded by a Greenhouse Gas Emission Reduction Grant from the Port of Long Beach. The remaining lights are being funded through an energy reduction program offered by Southern California Edison (SCE). To date, roughly 9,000 streetlights have been converted to LED and the program is scheduled to be complete by the end of 2017.

Community feedback on the lights has primarily been positive; however, recently staff has started to receive complaints about the color temperature of the LED lights. These complaints relate to guidelines adopted by the American Medical Association (AMA) in June 2016 concerning the human and environmental effects of LED streetlights.

The AMA guidelines assert that high-intensity LED lights emit a large amount of blue light that appears white to the naked eye and create discomforting nighttime glare compared to conventional lighting. The report claims the glare can affect vision while driving or walking at night. As such, the AMA recommends an intensity threshold for LED lighting to minimize and control blue-rich environmental lighting. Other organizations, such as the United States Department of Energy (DOE), Illuminating Engineering Society (IES), and Lighting Research Center (LRC) have issued differing perspectives on LED lights and are pushing for more research and debate on the topic.

The design aspect of LED lighting that controls the amount of blue light is known as Correlated Color Temperature (CCT), which is a measure of the spectral content (blue, green, yellow, red) of light from a source. The industry standard for CCT is 4000 Kelvin (K), the same CCT of the LED light fixtures being installed in Long Beach. However, the AMA encourages the use of 3000K or lower for outdoor installations such as roadways, which emits less blue light and more yellow and red wavelengths than 4000K.

The City initiated the LED conversion project prior to the release of the AMA report and selected 4000K LED light fixtures to illuminate public streets/sidewalks with the intent to

enhance visibility and safety for motorists, pedestrians, and safety responders. Additionally, only the 4000K LED fixture was eligible under the SCE energy incentive program. With different communities calling for more options, SCE has recently added a 3000K lighting fixture to the program eligibility list, giving Long Beach another option to consider.

With the additional color temperature option, the AMA report, and the community's input, staff re-evaluated the best approach for installation of LED street lights, especially those in residential neighborhoods. Recently, the City conducted a test comparing the 3000K to the 4000K fixtures in a residential neighborhood, while both of the fixtures are rated at the same wattage, the 3000K has a warmer appearance and we believe will result in fewer complaints in residential neighborhoods. After consideration, staff will be utilizing the 3000K fixtures in residential neighborhoods on a go forward basis, especially those of a historical nature, and use the 4000K lights along major corridors and in commercial/industrial areas. Requests to convert 4000K to 3000K in neighborhoods where 4000K is already installed will be addressed on a case by case basis, as in many neighborhoods the 4000K has been received very positively by the community.

There will be a cost associated with this change, as some fixtures ordered through the SCE program will need retrofitting at the City's expense. Staff is still developing the total cost for this change.

If you have any questions regarding this matter, please call Craig Beck, at (562) 570-6771.

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