Testing Energy Efficient Street Lights
City of Phoenix Street Transportation Department

Why We Are Testing

Following the adoption of the Green Phoenix Initiative and the desire for City departments to embrace "green" practices in the delivery of city services, the Street Transportation Department in conjunction with Arizona Public Service (APS) is currently testing new street lights designed to last longer and use less energy. Phoenix operates and maintains approximately 90,000 light fixtures, so using energy efficient street lamps that last longer can dramatically reduce the costs for electricity and maintenance.

We currently use two main types of lights: cobra-head style and architectural shoebox style lighting. At present these fixtures are equipped with High Pressure Sodium (HPS) bulbs.

Cobra-Head Style

Architectural Shoebox Style

Technology in the lighting industry is evolving. Given the promise of reduced costs resulting from changes in the industry, we believe we have an obligation to the public to examine new products as they emerge.

Types of Lighting Tested

LED: LEDs (light-emitting diodes) have been around since the 1960s. You've probably seen them used as indicator lights in consumer products. Over the past few years, we have replaced some of our traffic signal incandescent lamps with LED lamps, resulting in significant energy savings. Although they cost more upfront than the bulbs they replace, LED lights use less energy and last longer than conventional bulbs, which could result in savings on energy and maintenance costs. Other advantages of LED's is that they produce directional light (which allows more control over what is lighted), produce a whiter type of light, and contain no hazardous materials.

Induction Lighting: Lighting induction lamps are high frequency (HF) light sources, which follow the same basic principles of converting electrical power into visible radiation as conventional fluorescent lamps. The life of induction lamps on the market today is about 100,000 hours, making it beneficial to use these lamps in applications where maintenance is expensive. Other advantages of induction lighting are that they are capable of producing a wide range of color temperatures, they maintain lumen (light) output over their life, and they use less energy than conventional bulbs.

Present Status

We are working with various manufacturers to develop, install, and test energy efficient Street Lighting. The testing will examine energy consumption, ease and cost of replacement fixtures, illumination levels, and community acceptance. One critical question to be answered is whether energy efficient street lighting produces light levels which meet our current light level standards in Phoenix. Another area of concern would be heat tolerance of the light and how it relates to the life and lumen output of the fixture.

Where We Are Testing

El Cortez Place and 64th Ave Testing Area – February 2007: The Street Transportation Department, in conjunction with Arizona Public Service, began testing LED and Induction street lights on a local street for illumination evaluation. The testing involved a side by side comparison with an LED light on one end, our standard High Pressure Sodium light in the middle and an Induction light on the other end. Seven different fixtures have been tested thus far ranging from 40 watt Induction lights to 90 watt LED lights.

5th Street between Garfield Street and McKinley Street – November 2009: Three 80 watt Induction lights were installed on 5th Street between Garfield and McKinley Street to replace 150 Watt HPS lights in our city standard Cobra Head Street Lights.

3rd Street between Garfield Street and McKinley Street – August 2009: Two 100 watt LED lights were installed on 3rd Street between Garfield and McKinley Street to replace 250 Watt HPS lights in our city standard Cobra Head Street Lights.

Central Avenue between Van Buren Street and Adams Street – August 2009: Four 203 watt LED lights were installed on Central Avenue between Van Buren Street and Adams Street to replace 250 watt HPS lights in our city standard Architectural Shoebox Street Lights.

Turney Avenue between 33rd Avenue and 31st Drive – March 2009: Ten 75 watt induction lights were installed on Turney Avenue between 33rd Avenue and 31st Drive to replace 100 watt HPS lights in our city standard Cobra Head Street Lights.

Adams Street between 1st Street and 4th Street – December 2008: Twenty-six 85 watt induction lamps were installed on Adams Street between 1st Avenue and 2nd Street to replace 206 watt Metal Halide lamps in our two-globe ornamental lighting fixtures known as the Copper Square lights.

Let Us Hear From You. . .

Although scientific tests are important in the decision-making process, public reaction will also help to guide our decisions. Please share your comments with us by e-mail at: jason.fernandez@phoenix.gov.