

## FACT SHEET: Residential LED Streetlights Conversion

February 2013

### Summary

Arlington is deploying the **latest state-of-the-art, intelligent light-emitting diode (LED) streetlight and signal technology** throughout the County to modernize the network, **reduce overall costs and minimize the environmental impact**. The County maintains approximately 6,000 streetlights. Almost all of these streetlights were based on outdated, **inefficient high-pressure sodium** technology which is expensive to operate. As of the end of 2012, almost half of these streetlights have been converted to LEDs.

### Project Goals

- To **modernize the network, reduce costs, minimize environmental impact, and improve safety and visibility**, for vehicular and pedestrian traffic on the County roadways.
- The new energy-efficient streetlights support Arlington's environmental and energy goals.
  - The project **meets or exceeds both the International Dark Sky Association** and Illumination Engineering Society (IES) standards as given in the Model Lighting Ordinance (MLO) for ornamental lighting (minimizing the upward and backlight), thus reducing light pollution and interference with wildlife.
  - The LED lights do not contain mercury, lead, and harmful UV and IR light, which were found in older light bulbs.
  - The **system's wireless capability** will allow staff to **program the lights to automatically gradually dim** according to the time of day and the surrounding area (commercial or residential.)
  - The County anticipates an **energy cost savings of nearly 75 percent annually** and a further reduction in greenhouse gas emissions. This program is another way that Arlington County is meeting its [energy saving goals](#) through carbon reduction.



### Modernizing Arlington's Residential Lighting Network

- The County began converting traffic signals in Arlington to LED technology in the mid-2000s. In 2010, the County began upgrading streetlights along both residential streets and major corridors.
- LED lights have many features that make them ideal for use in Arlington's streetlights and signals.
  - **LED streetlights have longer usable life** – 25+ years (as opposed to three years for older bulbs)- and **use almost 75 percent less power** making them less expensive to maintain.
  - The LED streetlights selected by the County have a seven year warranty. The pay back on the investment is approximately six years, before the end of the warranty.
  - The lights produce **uniform distribution and dispersion** creating safer roadways and sidewalks for all users.

### Brightness of LED Streetlights

- LED streetlights are a "whiter" light than the perceived "yellow" light of high-pressure sodium lights (HPS).
  - The LEDs produce light very close to the color of sunlight, almost pure white, which is the **most effective color for seeing during the night**.

- With the **passage of time the HPS lights produced less usable light** due to discoloration and baking of dust on the globes – with time their usability diminished. LEDs do not degrade over time, and do not result in discoloration of the globes.
- **LED streetlights actually put out less light.** The HPS lights put out 9,600 lumens as compared to LEDs, which put out 4,600 lumens. The old HPS lights produce very little usable light on the streets and sidewalks for the energy they consume.
- All LEDs in residential areas will be connected to a **smart technology that dims the lights for residential streets as the activities on the roadway lessen.** The dimming technology works on dusk to dawn cycle: light comes on at full 4,600 lumens for the first 20 minutes or so, and then drops to approximately 50% (2,200 lumens) until about 11:00 p.m., when it drops to approximately 25% (1,050 lumens) until dawn. The timing of the dimming program is set to balance concerns for brightness with national standards for safe lighting of sidewalks and streets for bicycles, pedestrians, and vehicles.
- In order to reduce the brightness of the LEDs on neighborhood streets, the County has also begun installing **“eyebrows”, which shield some of the light output, on the side of the lights adjacent to homes** at the time of conversion. In addition to the dimming, these eyebrows should mitigate concerns for the brightness of the LEDs.

#### **Conversion Installation Process** *(Note: This process may shorten with efficiency improvements)*

- Installation and initial operation – Conversion takes up to two weeks for each street.
- During the conversion installation process, streetlights will remain off, and crews will work to minimize the traffic impact in the area.
- Conversion includes testing of the initial operation of the newly retrofitted lights and the implementation of the **remote dimming capability.** Each light must be individually programmed for dimming purposes.

#### **Project updates and information**

- For more information, visit [www.arlingtonva.us](http://www.arlingtonva.us), and search “Streetlight Conversion”.
- For specific questions regarding Arlington’s streetlights and signals, contact Santosh Neupane, Streetlight Engineer, at [sneupane@arlingtonva.us](mailto:sneupane@arlingtonva.us) or 703-228-0778.