

Louisville Metro LED Retro-fit Project Summary

Louisville Jefferson County Metro Government recently completed a metro wide project to convert all of the Metro owned traffic signals from incandescent bulbs to energy efficient, low maintenance LED's (light-emitting diodes). The goal of this project was to provide increased traffic signal energy efficiency and improved public safety.

LED traffic control displays offer numerous benefits. They reduce energy consumption by an average of 80%. This translates into dollar savings as well as reductions in emissions from electricity generation including carbon dioxide, nitrogen oxides, and sulfur dioxide. They last significantly longer, thereby reducing preventive maintenance costs, emergency re-lamping costs, and traditional bulb disposal costs. Studies have shown that LED's also improve intersection safety by improving visibility and reducing "outage time". Retrofitting traffic signals to LED's also benefits greenhouse gas reduction measures.

Louisville Metro currently operates and maintains total of (637) traffic signals. (349) of these traffic signals are owned by the Kentucky Transportation Cabinet (KYTC). The state owned traffic signals were upgraded through a KYTC project that began in January 2005 and was completed in June 1, 2005. The Metro LED project utilized a temporary labor force in the evening hours using Metro owned equipment to perform the installations at a total cost of \$620,000. The Metro LED retro project was funded with a combination of bond monies and Metro Capital funding.

Approximately 9,000 incandescent bulbs were changed out to LED's through the LED retro-fit project. This number includes every traffic and pedestrian signal display, along with school flashers and flashing beacons. Most of the traffic signal indications that are operated by Louisville Metro are 12 inches in diameter. A 12-inch incandescent bulb uses 165 watts of electricity for each of the red, yellow and green indications. A 12-inch red LED uses 10 watts, the yellow uses 22 watts and the green uses 12 watts of electricity. The life of an incandescent bulb is generally 8-12 months whereas the LED's usually last 6+ years.

The metro-wide retrofit of approximately 20,000 incandescent traffic signal indications to the GEL core Light Emitting Diode (LED) module saves approximately 7.5 million KWH per year. This results in energy savings of \$250,000 annually. That amount is equivalent to enough electricity to power 750 homes. It has the equivalent greenhouse gas effect of planting 10,000 acres of trees or taking 1000 cars off the road each and every year from now on. This project has resulted in tremendous savings for the taxpayers of Louisville Metro.