



## Project Summary

In 2010, Arlington County, VA, made the decision to completely replace their street lighting. The choice was made to install LED retrofit streetlights from Revolution Lighting Technologies in order to reduce lighting costs and greenhouse gas emissions. The LED replacements for the downtown decorative "globe" lights included 4,222 Retrofit Universal Acorn (UA) Spring Steel fixtures with Sentinel lighting controls. The eventual goal is to replace all public lighting with LEDs. Full implementation of the project will cut Arlington's lighting energy use by over 65 percent.

**End User:** Arlington County, Virginia

**Application:** Street Lighting & Controls

**Products:**

- RVL T UA Decorative Post-Top Luminaires – 4,223
- Sentinel Controls

**Benefits:**

- 60 percent reduction in energy use over HPS lighting
- Estimated annual savings of approximately \$243,000
- 10-15 year lifespan of the new LED light engines vs. 2-year lifespan of traditional fixtures
- Estimated three-year payback
- Less light trespass
- Improved light output and color rendition for enhanced business district safety

## Project Overview



A key factor in this project was the combination of highly efficient retrofit light engines with the Sentinel Controls System. The Sentinel Controls System provides on/off control, dimming, monitoring of light operation, and highly advanced scheduling. The flexibility of the Sentinel Controls System has allowed Arlington County to set light levels at 30 percent of normal in many areas of the county for most of the night resulting in an additional 65 percent reduction in energy usage versus using LED light engines alone.

Pounds of <b>Coal</b> Saved @ 0.08 lbs/kWh	131,665 lbs
Gallons of <b>Oil</b> Saved @ 0.07 gals/kWh	115,208 gals
Pounds of <b>Carbon Dioxide</b> Saved @ 1.95 lbs/kWh	3,209,349 lbs
Pounds of <b>Sulfur Dioxide</b> Saved @ 0.008477 lbs/kWh	13,951 lbs
Pounds of <b>Nitrogen Oxide</b> Saved @ 0.004092 lbs/kWh	6,734 lbs



## Project Overview (cont')

Various dimming programs were created for residential, commercial, and mixed applications in which the scheduling features of the lighting control system was able to track sunrise and sunset throughout the year and adjust the dimming programs automatically. Users also were able to log into the system remotely to monitor performance in specific areas to address the unique needs of county residents.

*“A poll of Arlington residents asking what they thought about the fixtures indicated they liked the RVLT models. After the conversion, Arlington will be the first known county in the world to have lights that are 100 percent dark sky compliant, which means they don’t shoot any glare up toward the sky. The project is going well; we are happy with the program,” said Shahid Abbas, Manager of Arlington City & County Street Standards.*



## Cost Analysis

### Annual LED Life-Cycle Cost Analysis

Existing Fixture	Number	Energy Use (kWh)	Cost/Unit	Total Cost
HPS (150 W)	2,211	1,738,282	\$ 0.09	\$ 156,445
HPS (100 W)	2,211	1,275,973	0.09	114,838
Maintenance (est.)	-	-	-	84,440
<b>Total Costs for Period</b>				<b>\$ 355,723</b>

Replacement Fixture	Number	Energy Use (kWh)	Cost/Unit	Total Cost
UA Spring Steel	4,222	1,068,434	\$ 0.09	\$ 96,159
Maintenance (est.)	-	-	-	2,852
<b>Total Costs for Period</b>				<b>\$ 113,047</b>

Savings	Savings
Energy Savings	\$ 175,124
Maintenance Savings (est.)	67,552
<b>Total Savings LED Fixtures</b>	<b>\$ 242,676</b>

Using RVLT LED fixtures with Sentinel lighting controls will result in an overall savings of 65 percent annually. Utilizing the savings in energy costs and additional estimated maintenance savings, the project will have a projected simple payback of three years.

Visit [www.rvlti.com](http://www.rvlti.com) for more information.