

“With these new LED street lights, Boston continues to live up to its reputation as one of the greenest cities in the country...Not only do these lights help reduce greenhouse gas emissions, they also save Boston money in tough economic times. We’re excited to add these aesthetic and durable lighting fixtures to our streets.”

– Mayor Thomas Menino



Going “Green” with Outdoor LED Lighting from Philips Hadco saves Boston plenty of greenbacks, too

Boston, first incorporated as a town in 1630 and as a city in 1822, is one of America’s oldest cities, with a rich history as the economic and cultural hub of New England. Boston is home to over 617,000 residents, many institutions of higher education, some of the world’s finest inpatient hospitals, and numerous cultural and professional sports organizations. Visit www.cityofboston.gov

From its 1,100-acre Emerald Necklace of urban parks to the pristine outfield grass (and left field wall!) of Fenway Park, Boston is a refreshingly green city.

But ensuring the city maximizes its ability to be environmentally “green” has been a major initiative spearheaded by Mayor Thomas Menino, and one that is articulated in the city’s updated climate action plan – which calls for reducing citywide greenhouse gas emissions 25 percent by 2020.

Thanks to a recent major outdoor lighting project, thousands of street luminaires throughout Boston neighborhoods are contributing to the city’s greenhouse gas emissions reduction

goal by helping eliminate more than 6,000 metric tons annually; this amount is equivalent to 1,200 fewer cars. The new lights are saving the city more than \$1.3 million annually in electricity costs, and are estimated to deliver an impressive payback period of less than five years.

Throughout 2011, Boston is installing more than 14,000 Philips Hadco RX1 and RX2 LEDGINE LED Roadway Luminaires, which exceeded the city’s technical requirements while meeting its budget for the lighting upgrade. The Philips LEDs are designed to last significantly longer and save considerable amounts of electricity and emissions compared

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to the mercury-vapor cobra street and roadway lamps that lit many Boston neighborhoods previously.

“With these new LED street lights, Boston continues to live up to its reputation as one of the greenest cities in the country,” said Mayor Menino, referring to the city’s designation by Popular Science as the 3rd Greenest City in North America. “Not only do these lights help reduce greenhouse gas emissions, they also save Boston money in tough economic times. We’re excited to add these aesthetic and durable lighting fixtures to our streets.”

According to Glenn Cooper, associate electrical engineer for Boston’s Street Lighting Division, the Philips Hadco LED luminaires are also expected to generate considerable savings in maintenance costs for the city. That is because the useful life¹ of the luminaires is about 20 years, or more than four times longer than the rated average life² of the lamps they are replacing.

“Philips Hadco delivered on everything we were looking for,” said Cooper. “Whether energy savings and outage reductions or enhanced visibility and improved light uniformity, they have met or exceeded all of our requirements.”

Boston is among a growing group of environmentally- and fiscally-responsible cities that are adopting innovative lighting technologies, such as LEDs, for their long-term economic, environmental and aesthetic benefits. For instance, a distinct advantage of outdoor white lighting is its proven higher perceived brightness. This means that lower wattages of LEDs can be used while still giving drivers and pedestrians crisp, uniform white lighting that is brighter than the previous luminaires.

The RX1 and RX2 luminaires are based on the Phillips LEDGINE LED platform, which features industry-leading LUXEON LEDs and a modular approach allowing for future upgrades as the technology advances. They are available in multiple color temperatures according to their specific application and can easily integrate with a full range of lighting control systems.

Importantly, in Boston’s circumstances, the Philips Hadco solution is enabling the city to dramatically improve the quality, color and direction of lighting, thus improving residents’ comfort and safety. It also is eliminating the bothersome light trespass and light pollution problems (specifically, the “sky glow” effect when lights have improper uplift) that are endemic to the inflexible mercury-vapor lighting used previously.

The entire benefits package – savings in overall cost and greenhouse gas emissions, as well as better light quality – has impressed Boston officials and citizens, said Cooper: “This investment in LED lighting is aesthetically, environmentally and economically beneficial, a combination that all taxpayers can appreciate.”

¹ Useful life is the projected time (in hours) until L70 lumen maintenance, at which point the LED luminaire is producing at least 70 percent of its initial light output. L70 generally exceeds the typical lumen maintenance of non-LED lamps at their rated average life or when they are replaced, typically when they are producing very little light or are burned out.

² Rated average life is the length of operation (in hours) at which point an average of 50% of the lamps will still be operational and 50 percent will not.

Project Statistics

End User	City of Boston
Project Site	Various locations in neighborhoods throughout Boston, including the North End and South Boston.
Project Scope	Replace 14,000 municipally-owned mercury-vapor cobra street and roadway luminaires in various Boston neighborhoods with Philips Hadco’s RX1 and RX2 LEDGINE LED Roadway Luminaires.
Project Timetable	Installation began in the summer of 2011, and is expected to be completed in December 2011.
Local Supplier	Hurry Associates
Cost Savings with New System	According to statistics from the City of Boston, the conversion to the Philips Hadco LED luminaires is expected to save the city approximately 8.9 million kilowatt hours of energy each year, yielding a savings of about \$1.3 million annually in the cost of electricity.
Other Benefits	<ul style="list-style-type: none"> • Improved visibility, thanks to clear, white color and superb color rendering • Ability to pinpoint beam and spread light more evenly, thus vastly reducing light trespass and light pollution issues • Significant sustainability advantages, as the luminaires are expected to help eliminate more than 6,000 metric tons of greenhouse gas emissions annually • Estimated payback time of less than 5 years generates a timely and positive return on investment • Longer lamp life reduces maintenance expense and disposal costs <ul style="list-style-type: none"> – With an 80,000-hour rated average life, the Philips Hadco RX1 and RX2 LED luminaires are designed to last about 20 years or more than four times longer than the previous lamps.