



REALTERM
ENERGY



Case Study:

Oshawa's LED Streetlight Upgrade

Increased Safety & Decreased Carbon Footprint

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The City of Oshawa, located along Lake Ontario's shoreline, is home to almost 160,000 residents. It is commonly viewed as the eastern anchor of the Greater Toronto Area and is 146 square kilometers in size.

OVERVIEW

- The City selected RealTerm Energy in 2016 to perform a full turnkey LED conversion
- Oshawa's streetlight network update included a combined total of over 12,500 cobra head and decorative fixtures
- The City's contracting partner was Oshawa Power and Utilities Corporation (OPUC) who administered the project on behalf of the City
- The LED fixtures reduced light pollution across the City, which was a concern to many residents
- Maintenance costs were reduced by up to 80%
- Estimated nearly 60% reduction in energy consumption
- Oshawa, an environmentally conscious city, become even greener due to the conversion
- 97% approval rating by Oshawa's citizens of the streetlight upgrade
- Annual reduction of 432 metric tonnes of greenhouse gas emissions was anticipated by the City

OPPORTUNITY

In 2016, the City of Oshawa determined that it was prepared to undergo an upgrade of its streetlight system to energy-efficient, light-emitting diode (LED) streetlights that would significantly reduce energy and maintenance costs, and provide a smarter, environmentally-friendly lighting system. The City also recognized that this would be an ideal project in which to collaborate with its utility, Oshawa Power and Utilities Corporation (OPUC), to assist in the implementation.

The new LED fixtures were expected to cut Oshawa's streetlight energy consumption by approximately 60%, as LEDs require significantly less electricity than the high-pressure sodium lights that were currently in place. RealTerm's design team identified a number of neighbourhoods that were underlit prior to the upgrade, requiring slightly less overall savings from the incumbent light levels in order to deliver safe and effective lighting levels. The planned upgrade would also decrease annual streetlight maintenance costs by up to 80%, as LEDs' solid-state technology (with no moving parts) last up to four times longer than the City's existing streetlights. The new LED lights would also include a 10-year warranty.

By moving forward with the conversion of all of Oshawa's streetlights to LED, the City planned to reduce its greenhouse gas emissions by an estimated 432 metric tonnes per year, which adds up to 9,925 metric tonnes over the lifetime of the fixtures. This is the equivalent of the greenhouse gas emissions avoided by recycling 3,150



tons of waste instead of landfilling them, thus significantly reducing the City's carbon footprint.

RealTerm Energy and LAS collaborated to help the City of Oshawa apply to participate in the Independent Electricity System Operator (IESO) Incentive Program (specifically the component that applies to exterior LED lighting). The City was approved for the subsidy and was granted an incentive in the amount of nearly \$1.2M, greatly assisting with the implementation costs of the project.

RESULTS

A tri-party partnership between the City of Oshawa, the OPUC and RealTerm Energy resulted in the following:

- 12,500 streetlights were converted to LED
- 97% approval rating of the upgrade by Oshawa's citizens
- Project involved changing cobra head fixtures in the City's residential and arterial sectors and the provision of new decorative fixtures in the downtown core
- New LED fixtures have reduced light pollution across the City through reduced glare and illumination of only targeted areas.

ADDITIONAL BENEFITS

The new streetlights added a level of safety and security throughout Oshawa and at the same time, reduced the City's carbon footprint. Additionally, the City of Oshawa now has an accurate and complete mapping of not just the location of all of its streetlight assets but a complete inventory of all work performed on each fixture.

RealTerm Energy's custom dashboard gives the City of Oshawa a graphic display of all work performed during the upgrade, as well as future work, yielding a significant improvement in the City's asset management capabilities. The cobra head install map appears here: <https://arcg.is/HbLzj> and the decorative install map can be found here: <https://arcg.is/S1LPG>

This project was a classic win-win as going forward, the community will be saving hundreds of thousands of dollars in reduced energy costs and providing environmentally-friendly lighting.



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