



Illuminating Innovation

Optimizing Ottawa's streetlighting for a smarter future.

- Between 2016 to 2020, Enviri is converting 58,000 streetlights to LEDs
- \$5 million in energy and maintenance savings annually for the City of Ottawa
- 60% reduction in energy use



Background

In 2015, Ottawa City Council committed to using light-emitting diode (LED) technology for all streetlighting infrastructure. To complete this large project, Ottawa turned to Smart Cities by Envari—a trusted advisor that has completed hundreds of energy efficiency projects for the municipality. The City's streetlight conversion project began in July 2016 and will be completed on schedule in 2020.

- In 1885, Ottawa became the first city in the world to light all of its streets with electricity
- Between 2016 to 2020, Envari is converting 58,000 streetlights to LEDs

Opportunity

By converting 58,000 streetlights to LED technology, the City of Ottawa will save millions of dollars annually, and significantly reduce the City's energy use, maintenance costs, and CO2 emissions.

- Streetlighting accounted for 17% of annual electricity used by the City of Ottawa at project launch
- The City of Ottawa spent \$7.2 million annually on streetlighting costs at project launch

The Envari Method

This project is more than a simple LED conversion. Smart Cities by Envari has harnessed a suite of services and expertise to deliver a full turnkey LED conversion project, including engineering, design, project management, installation, streetlight maintenance, and incentive applications. Envari has developed a smart dimming control and asset management plan that monitors energy use, functionality, and optimization of lighting levels for each individual streetlight. As part of this project, Envari has implemented a wireless network across the municipality that allows each LED streetlight to report its status, communicate in real-time, and be dimmed by design. This marks the first time that Ottawa has had full control and visibility of their streetlighting asset. The project remains on-time and on-budget.

Envari's design philosophy promotes smart-connected infrastructure, which provides municipalities with full control of their assets while enhancing their communities. Some engineering and design strategies include:

- Warm colour temperature (3000K) LEDs in all residential areas
- Full cut-off classified LEDs
- Shielding installation when necessary
- Individual remote dimming to designed levels
- Smart-connected control nodes on each LED
- Daily reports including failures, warnings, and operating characteristics
- Graphical view of the LED streetlight asset via current mapping interfaces (e.g., Google, Bing)
- Localized gateways to create a wireless network for the LEDs and future smart city applications

This smart system provides valuable real-time data, which enables Envari to proactively address lighting issues or outages.

Benefits

- **60% reduction in energy use**
- **50% decrease in maintenance costs (or \$1.6 million annually)**
- **LEDs will decrease CO2 emissions by more than 1,000 metric tonnes annually**



As we approach the 50% completion milestone with the City of Ottawa's LED conversion, our collaboration with Smart Cities by Envari continues to show the true value of this partnership. Our integrated team works together to ensure that the project continues to improve the nightscape in the nation's capital and provides substantial energy and cost savings.



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