Replacing pole top fixtures with 130W LED fixtures

Savings of over 117,000 kWh per year

Remediating safety concerns and upgrading lighting systems at the OC Transpo HQ

1500 St. Laurent Blvd, Ottawa, ON, K1G 0Z8

OC Transpo is not only helping to mitigate climate change by providing public transit services, but it also goes one step further by ensuring that all its facilities are running at optimum energy efficiency.
OC Transpo is a transportation service that provides comprehensive transit services to almost 1 million residents in Ottawa. These services include a transitway that is dedicated to OC Transpo and emergency vehicles, travelling from one end of the city to the other, as well as 5 O-train stops, a Park and Ride program, and finally a door-to-door service for people with disabilities called Para Transpo. The OC Transpo fleet consists of over 975 buses and 6 trains serving nearly 340,000 riders daily. When not in use, this fleet is parked at four bus depots around the city, with the headquarters located at 1500 St. Laurent Boulevard. OC Transpo operates under a mandate to deliver a safe and reliable service while reducing greenhouse gas (GHG) emissions and traffic levels on the road.

In 2013, Energy Ottawa conducted a site visit to collect information on various lighting equipment regarding adjacent parking lot sites within the OC Transpo 1500 St. Laurent complex. The visit flagged a number of safety concerns that required immediate attention with respect to existing pole assembly and concrete base in addition to lighting fixtures that needed to be replaced.

The St. Laurent garage building, which had undergone an interior lighting retrofit in 2012 that cut its energy costs by 43%, also required upgrades to its exterior lighting in the form of wallpacks. The exterior of the north garage was equipped with 400W high pressure sodium (HPS) wallpacks yielding a total system wattage of 465W, while the exterior of the south garage was illuminated with 175W metal halide (MH) wallpacks with a total system wattage of 210W.

The project was one of the earliest parking lot projects that OC Transpo implemented using light emitting diode (LED) fixtures. It saw the removal of existing light pole assemblies and the concrete bases associated with some of these poles. The poles were replaced with new 20’ aluminum poles that maintained the same height, while new concrete bases were installed.

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The project also qualified for approximately $6,000 in incentives from the saveONenergy program. Both measures have a combined payback period of 17 years, which is very long due to the replacement of the poles and concrete bases that do not contribute to energy savings. However, this project not only saved energy, but also resolved safety problems.

New LED Gullwing fixtures with system wattage of 130W were supplied by Energy Ottawa.

The overall light levels will be slightly lower than before; however, the visual acuity of the space will be greatly enhanced due to the white light as opposed to the old yellow light of the HPS fixtures.

As for the wallpacks on the exterior of the St. Laurent garage, the north garage MH wallpacks were replaced with new 126W LED fixtures, while 72W similar fixtures replaced the HPS fixtures on the south garage.

The total cost to implement the project was $243,000: $151,000 for the exterior pole top LEDs at the parking sites, and $92,000 for the exterior LED wallpacks.

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3 RESULTS

Energy results: The project is expected to save over 117,000 kWh annually, which would reduce utility costs by around $14,000 per year.

GHG reduction: The project prevents approximately 87.1 tonnes of carbon dioxide equivalent (tCO₂e) from being released into the atmosphere every year. This is similar to removing 19 passenger vehicles off the road.

4 CONCLUSIONS & REFLECTIONS

OC Transpo has been taking solid steps in the journey to achieve the City’s greenhouse gas emission reduction goals: from the Light Rail Transit project currently underway to smaller retrofits at their other facilities.

Although the payback period for this particular project was relatively long due to non-energy saving aspects of the infrastructure upgrades, it was definitely successful in reducing the facilities energy use intensity.

REFERENCES

[1] Meeting with Jean Paul Rozon, Section Manager, Recreation, Cultural, and Facility Services Department (November 27, 2017)