Municipality of Port Hope
56 Queen Street
Port Hope, ON
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REPORT TO: Works and Engineering

FROM: Jeanette Davidson, Director, Works and Engineering

SUBJECT: RealTerm Energy Street Light Conversion Project

DATE: September 7, 2021

RECOMMENDATION:
That a resolution be presented to Council to support the proposal from RealTerm Energy to convert approximately 147 High Pressure Sodium cobra head light fixtures to LED fixtures in 2021 to be funded by the Transportation Division operating budget.

BACKGROUND:
As part of the Municipality's Energy Conservation Management Plan (ECMP) opportunities to conserve energy are continually investigated. The ECMP identified street lighting as an important infrastructure component that would result in significant potential energy savings for the Municipality moving forward.

Local Authority Services (LAS), a wholly subsidiary company of the Association of Municipalities of Ontario (AMO) offers a turn-key light emitting diode (LED) streetlight program to the municipal market. Following a request for proposal process in the fall of 2014, LAS selected Cree Canada to be its manufacturing partner in offering this streetlight solution to Ontario municipalities. LAS's competitive process identified both RealTerm Energy and Cree as offering the best value and the highest quality of services available, in order to offer its members an alternative to engaging in a lengthy request for proposal process. Since the program's inception, more than 170 Ontario Municipalities have chosen the LAS/RealTerm Energy/Cree partnership to upgrade their streetlight networks.

In December 2020 the Municipality of Port Hope secured a grant application through the retrofit program offered by the Independent Electricity System Operator (IESO) application process. The IESO offers incentives for energy saving initiatives in Ontario under their SaveONenergy program.

This program is reviewed every 4 years to ensure incentives offered are still relevant. The former framework was set to expire December 31, 2020. The IESO advised that any projects with pre-approved incentives under that framework would have until the end of 2021 to complete the project and close-out their incentives. The Municipality of Port Hope was able to secure exterior lighting pre-approval incentives for their proposed streetlight conversion under the old framework in 2020 with an expected amount of $58,745.00 with a total project cost of $1,147,734.00 which represents the replacement of all 1,734 streetlights.

On February 23rd, 2021, RealTerm Energy provided their initial LED assessment for illustrative purposes, based upon a basic one-for-one replacement technique, to give a reasonable estimate of the potential energy savings prior to performing the actual lighting designs. RTE selected Cree LED fixtures with comparative light outputs for all existing High-Pressure Sodium (HPS) fixtures recorded in the Municipality of Port Hope 's most up to date inventory.

Earlier this year, staff provided RealTerm Energy approval to conduct an Investment Grade Audit (IGA) to obtain an accurate inventory of streetlight types and styles throughout the urban and rural areas of Port Hope. After their IGA was completed, their findings showed a variance of approximately 450 decorative street light fixtures from what was identified in the Municipality's inventory list of all standard Cobra Heads. These extra decorative light fixtures lead to a substantially increased price for the entire light network to be designed and replaced.

With the increased price of the overall project increasing following the IGA, staff recommend only completing a portion of project with the existing cobra head HPS lights, meaning only 147 lights will be converted to LED before the end of 2021. This will still allow the Municipality to use a percentage of the qualified incentive from IESO totaling $11,000.00 to put towards the 2021 upgrade reducing the net project cost to $89,000.00. The IGA did confirm the Municipality still operates over 1200 cobra head High Pressure Sodium (HPS) lights that can be upgraded to save on electrical costs, maintenance costs and along with decreasing greenhouse gases (GHG) expelled from the current HPS light fixtures. Staff know that converting a portion of the existing HPS lights to LED will help alleviate annual spending on maintenance, replacements and help the environment in the future.

Advancements within the lighting industry has shown LED technology to be reliable, longer lasting and more energy efficient than the existing high-pressure sodium (HPS) street light fixtures.

By upgrading the existing streetlights with LED technology, the Municipality of Port Hope would be able to:

- Reduce the Municipality's annual energy cost by approximately $18,750.00 and reduce our maintenance costs by approximately $3,600.00
- Reduce the Municipality's annual green house gas (GHG) by 4 metric tonnes over the life of the luminaries (approximately 22 years).
- Improve the quality of lighting for our customers and residents; and
- Enhance the natural environment both by consuming less energy and by avoiding light trespass.

The LAS program will maximize savings while at the same time upgrade the existing streetlights to top quality state of the art LED lighting. Cree Lighting Canada, the hardware provider, offers a ten-year product warranty on all the component parts in the fixture resulting in substantially reduced maintenance costs to the Municipality within the contract period.

In this proposal, the Municipality can take advantage of the RTE turn-key solution where they act as an external Project Manager to upgrade the network, while balancing the municipality's requirements and constraints to ensure that it gets the lighting results it needs. RTE coordinates the entire process including:

- A full review of existing lighting levels (photometrics) including inventory through GPS mapping of the existing lighting system.
- Work with Staff and Cree Lighting to provide the most appropriate fixtures to satisfy the Municipality's fixture needs.
- Outline potential energy and maintenance savings.
- Undertake the build-out and commissioning of the project and transfer the warranties to the municipality.

LEDs offer a number of advantages over HPS lights such as:

- Much lower power consumption, close to 70% energy savings.
- Long, predictable lifetime. LED lights do not burn out but lose brightness over time, while generally lasting many times longer than a conventional fluorescent or incandescent light – up to 100,000 hours compared to 4-6,000 hours. The much less frequent need to service or replace LEDs means low maintenance cost.
- More accurate colour rendering. The colour rendering index is the ability of a light source to correctly reproduce the colors of the objects in comparison to an ideal light source.
- Quick turn on and off with full brightness instantly. LEDs are not required to be on for a period of time before they reach maximum illumination.

This means that the lights will restart immediately (hot ignition) following a brief power failure or inadvertent turn off.

- Environmentally Positive, LEDs do not contain mercury or lead, and do not release poisonous gases if damaged.
- Less attractive to nocturnal insects. Nocturnal insects are attracted to ultraviolet, blue and green light emitted by conventional light sources.
- Light from LEDs is very directional, and they do not require diffusers or reflectors that reduce lighting efficiency. As a result, light does not shine where it is not wanted, such as into street-side bedroom windows; and
- Enhanced Safety via longer life and that any particular area is less likely to be in darkness due to multiple failure of the fixture.

RESOURCE IMPLICATIONS:

The revised proposal from RealTerm Energy identifies an overall project budget in the amount of $100,000 to replace 147 250W HPS lights to LED. Under the revised proposal, the Municipality only qualifies for the grant in the amount of $11,000, which reduces the project cost to $89,000. As a result of the on-going pressures related to COVID-19, several items included within the 2021 budget have not moved forward, resulting in a small surplus within the Transportation Division's operating budget. The benefits of moving forward with the streetlight upgrade outweigh the risk of these items being deferred to 2022. Staff recommend that this proposed LED light upgrade be funded from the 2021 Transportation operating budget.

CONCLUSION:

Staff recommend that Council approve the proposal from Realterm Energy for the replacement 147 HPS streetlights to LED in 2021. The Municipality can use a portion of the secured IESO funding of $11,000.00 through the SaveONenergy exterior lighting pre-approval incentive which must be completed by the end of 2021. Switching from HPS lights to LED lights is major leap forward in helping Port Hope become a greener and more environmentally friendly municipality. The full amount of the IESO incentive will be transferred to RTE upon receipt, to be applied to minimize the project costs.

Replacing a portion of the lights surveyed in the Investment Grade Audit this year is a fiscally responsible avenue to incorporate a project which saves money on maintenance, replacement costs and also helps protect to the environment.

Respectfully submitted

Jeanette Davidson
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