

Town of Pelham Council Report

Wednesday, February 19, 2025

Subject: LED Hydro Rate and Billing Review

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Department: Public Works

Recommendation:

BE IT RESOLVED THAT Council receive report 2025-0053 “LED Hydro Rate and Billing Review,” for information.

Background:

At their regular Council meeting on November 20, 2024, Town Staff and RTE presented the findings of the post-analysis on the Street Light LED Bulb Replacement Program. At the same meeting, RTE offered to provide a Hydro One Billing review for Council in Q1 of 2025. This report has been written to accomplish same.

In summary, Phase 1 of the project commenced November 11, 2022, and was completed February 2, 2023. The number of streetlights installed was 530. This phase only included cobra head luminaires. The 530 Phase 1 completed fixtures achieved approximately \$62,526 in annual savings, resulting in a project payback of 3.8 years on the capital investment.

Phase 2 of the project commenced on November 11, 2023, and was completed on February 2, 2024. The number of decorative streetlights installed was 1000. Concerning the Phase 2 work, the Town was to realize approximately 77% in cost savings for utility operating costs (hydro) and reduced maintenance costs. For 1000 fixtures, this represented approximately \$126,394 per year in savings, resulting in a project payback of 4.7 years on the capital investment.

31 Decorative fixtures were also installed on September 22, 2024, as an additional extra to the contract, for a total of 1535 streetlights.

Overall, the annual cost savings for operation and maintenance based on the Investment Grade Audit was estimated at \$188,920, with an estimated payback period of approximately 5 years.

Analysis:

Table 1 summarizes the Yearly Savings Achieved from the LED upgrade (see attached Appendix A). It notes that the total Streetlight expenditures before the upgrade was \$249,602.00. Post-upgrade, the Town’s total streetlight expenditure is \$59,660.00, with a total savings of \$189,941.00, constituting 76 percent overall savings. RTE submitted billing changes to Hydro One and RTE as part of the project.

Table #1 - Summary of Yearly Savings Achieved from the LED Upgrade

Parameter (Annual)	Before Upgrade	Post-LED Upgrade	Savings	Savings(%)
# of Fixtures	1535	1535		
Annual Electricity Consumption(kWh)	811,415	192,947	618,468	76%
Annual Utility Cost	\$188,879	\$47,516	\$141,363	75%
Annual Maintenance Cost	\$60,723	\$12,145	\$48,578	80%
Total Streetlights Expenditures	\$249,602	\$59,660	\$189,941	76%

RTE submitted several billing changes (Table#2) to Hydro One throughout the project to secure faster savings for the Town. Furthermore, the 66,014 starting kWh billed before the conversion included the unmetered lights inside public parks and Town Facilities. The two-phase project only focused on streetlights in the Town’s Road allowance. Table #2 has indicated the savings to be approximately 63 percent.

Table #2 – Hydro One Billing Change Summary

Description	Monthly Billed kWh	RTE Note
Starting Hydro One kWh(March 2023)	66,014	This was the starting kWh before the LED upgrade.
April 2023 Submission	56,861	Completed in Phase 1 (P-1332). Completed in May 2023.
December 2023 Submission	36,285	Completed in Phase 2 (P-1383). Completed in December 2023.
April 2024 Submission	25,116	Completed in Phase 2 (P-1383). Completed in April 2024.

August 2024 Submission	24,869	Completed in Phase 2 (P-1383) – side mounts. Completed in August 2024.
October 2024 Submission - Final Hydro One kWh	24,293	Completed in Phase 2 (P-1383) – side mounts. Completed in October 2024. Final billing change.

RTE Energy has reviewed the Hydro One monthly billing cycle for 2024. As indicated in Table#3, before conversion, the Town’s High-Pressure Sodium (HPS) streetlights used 66,014 kWh, which equates to \$17,163.64 per month. In Q1 of 2024, Phase 1 was completed, and billing was changed; the Town realized an approximate 55 percent reduction in its usage. In Q2 of 2024, with Phase 2 completion being delayed due to supply chain issues, RTE submitted a partial billing change to realize some savings. The result of this billing change has reduced consumption and billing to almost 57 percent. With another delay due to the 31 Decorative fixtures, the final conversions and billing change were not completed until Q4 of 2024. At the end of the year, with both phases of the project completed, the Town realized a total reduction of 24,293 kWh, which equates to 67 percent and results in an average of \$6,305.34 monthly bill.

Table #3- Summary of the monthly billing cycle for Hydro One.

Month	Billing Period Start	Billing Period End	# Days	Approx. Adjusted kWh, by # Days	Bill Total, \$
12	10/26/2024	11/25/2024	30	24,293	\$ 6,305.34
11	9/26/2024	10/25/2024	29	24,293	\$ 6,288.87
10	8/27/2024	9/25/2024	29	24,869	\$ 6,437.67
9	7/26/2024	8/26/2024	31	25,116	\$ 6,772.64
8	6/26/2024	7/25/2024	29	25,116	\$ 6,559.12
7	5/28/2024	6/25/2024	28	25,116	\$ 6,217.99
6	4/25/2024	5/27/2024	32	25,116	\$ 7,075.67
5	3/26/2024	4/24/2024	29	25,116	\$ 6,521.86
4	2/24/2024	3/25/2024	30	36,285	\$ 9,386.81
3	1/26/2024	2/23/2024	28	36,285	\$ 8,949.69

2	12/23/2023	1/25/2024	33	36,285	\$ 10,417.80
1	11/25/2023	12/22/2023	27	36,285	\$ 8,414.23
Monthly Billing Prior to Conversion				66,014	\$ 17,163.64

Note: Hydro One billing format changes during the 12-month Cycle

Additionally, RTE conducted quality control verification of the post-processed changes completed by NPEI following the billing changes, and the changes were identified as being processed accurately. Prior to conversion, per Appendix B, the Town was billed an average of \$2,965.50 per month. After the conversion, the Town was billed an average of \$1,404.40 per month. The conversion reduced the billing consumption by 47 percent.

It is noted that the theoretical savings based on the more efficient LED streetlights was calculated to be 76%. Based on the information provided in Table 2, the reduction in kWh represents a reduction in operating costs of 63%. The difference can be attributed to the fact that there are other streetlights and park lights located on town property that are not metered and are included as part of the overall lighting network. The LED Streetlight conversion project only focused on streetlights within the Town’s Road allowance; therefore, the savings can only be attributed to the converted lights. In the future, the town can further invest in converting high-pressure sodium (HPS) and less efficient lighting inside public parks and town facilities to realize further savings.

Financial Considerations:

There are no financial impacts on the Town as this report is for information only.

Alternatives Reviewed:

There were no alternatives reviewed in the preparation of this report as it is for information only.

Strategic Plan Relationship: Infrastructure Investment and Renewal

Providing a reliable and efficient street lighting network allows for the safe and efficient transportation of vehicles and pedestrians within the Town. In addition, an LED Streetlight Conversion program aligns with the implementation of the Town’s Climate Change Adaption Plan, helping to reduce energy usage and greenhouse emissions. It also provides an economic benefit to the Town through lower operation and maintenance costs.

Consultation:

The Treasurer, Manager of Corporate Services, Manager of Engineering, Manager of Public Works, and RealTerm Energy were consulted in preparing this report.

Other Pertinent Reports/Attachments:

Appendix A- RTE Hydro One Bills Review Summary - January 2025

Appendix B- NPEI BILL-22-23-24

Council Report #2022-0231 – Update on the LED Streetlight Replacement Project

Council Report #2022-0036 – LED Streetlight Conversion Binding Letter of Engagement between the Town of Pelham and RealTerm Energy Corp

Council Report #2021-0206 - Options for Implementing an LED Streetlight Conversion Program in the Town of Pelham

Council Report #2023-0092 – Update on the LED Streetlight Replacement Project

Council Report #2023-0224 – LED Streetlight Replacement Update and +Smart Technology Options

Council Report #2024-0037 – LED Streetlight Replacement Update Extras

Council Report #2024-0251- LED Streetlight Audit Report

Approved and Submitted by:

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