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# CONSERVATION AND DEMAND MANAGEMENT (CDM) PLAN

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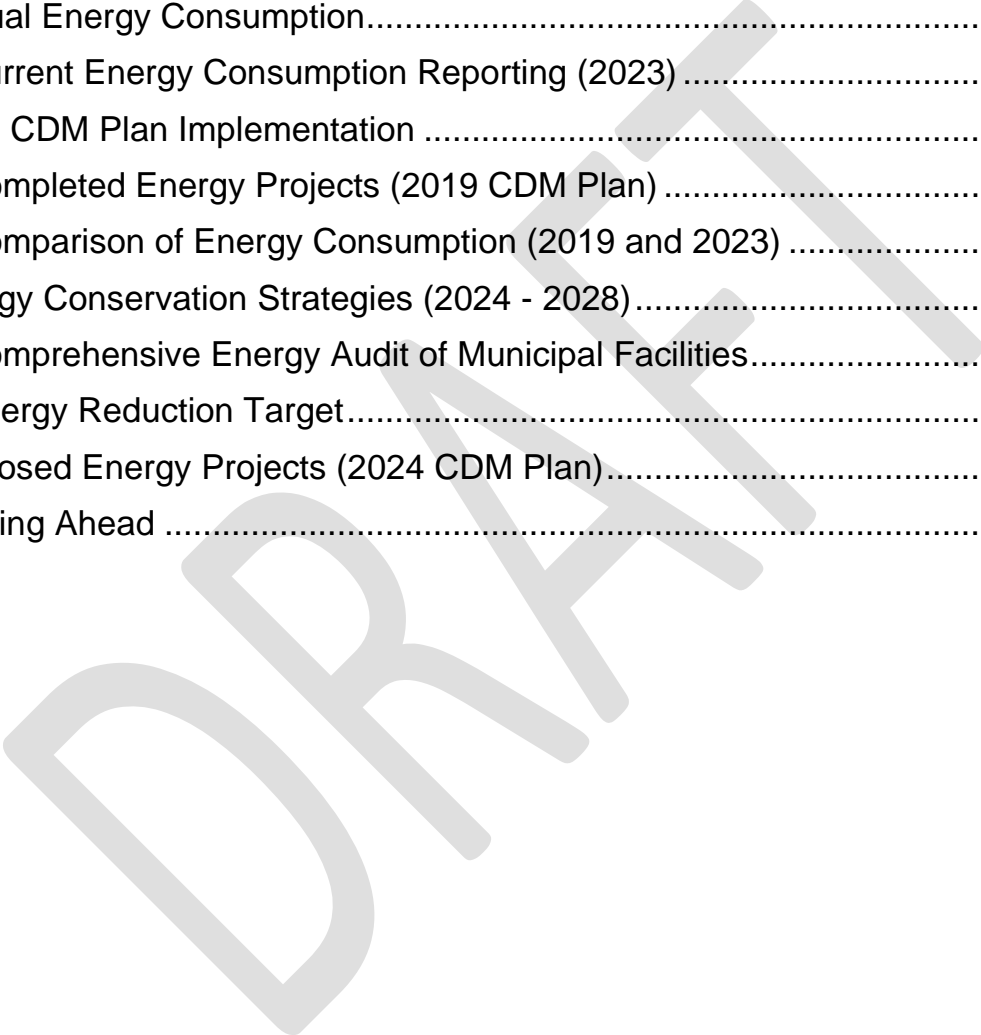
For the period of 2024 - 2028



**Municipality of South Huron**  
JULY 1, 2024

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## Summary

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The Municipality of South Huron's Conservation and Demand Management (CDM) Plan outlines a comprehensive strategy aimed at effectively managing and conserving resources within the municipality.

Through rigorous analysis and strategic planning, the report delineates measures to optimize energy consumption, enhance water management practices, and promote sustainable development initiatives.

By prioritizing efficiency measures and adopting innovative technologies, South Huron aims to mitigate environmental impact, reduce utility costs, and foster a resilient community for current and future generations.

This plan reflects the Municipality's commitment to environmental stewardship and underscores its dedication to fostering a sustainable and vibrant community for all residents.

## Purpose of the CDM Plan

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Efficient energy use represents one of the most cost-effective approaches to meeting energy needs. It offers numerous environmental, economic, and social advantages, such as reducing greenhouse gas emissions, cost savings, and avoidance. Additionally, responsible energy management fosters local economic growth, enhances energy system reliability and security, and mitigates price volatility. This document, following the framework established in our previous CDM Plan, continues a process that involves:

- Establishing and evaluating a performance baseline for comparison;
- Assessing the effectiveness of past conservation endeavors while establishing future goals;
- Continuously identifying opportunities for energy conservation;
- Strategically aligning improvement measures with financial limitations; and
- Evaluating, measuring, and disseminating achieved results.

## Background

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### Ontario Regulation 25/23

Ontario Regulation (O. Reg) 25/23 Broader Public Sector: Energy Reporting and Conservation and Demand Management Plans regulation (formerly O. Reg 507/18), mandates that public sector organizations in Ontario, develop and

implement comprehensive strategies for energy conservation and demand management.

The regulation requires these organizations to report their energy consumption data and outline plans to reduce energy usage and promote efficiency measures. By adhering to this regulation, public sector entities contribute to provincial energy goals, reduce greenhouse gas emissions, and lower operational costs.

The implementation of energy-saving initiatives outlined in compliance with O. Reg. 25/23 not only demonstrates organizational responsibility but also fosters a culture of sustainability and environmental stewardship within the broader public sector in Ontario.

As a Broader Public Sector (BPS) organization, the Municipality of South Huron is required to develop an CDM Plan and update the same every five years.

### **Previous CDM Plan**

The previous CDM Plan (referred to as 2019 CDM Plan) focused on prioritizing the management of energy consumption through various strategies which fall within one of the following pillars: technical, behavioral and organizational. Through the various strategies focused on energy conservation and efficiencies, the Municipality will build the capacity to achieve the desired reductions and successful energy project implementation.

## **Annual Energy Consumption**

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### **Current Energy Consumption Reporting (2023)**

As of July 1, 2024, the Municipality has 15 facilities subject to annual reporting under O. Reg 23/25, categorized by facility type, including:

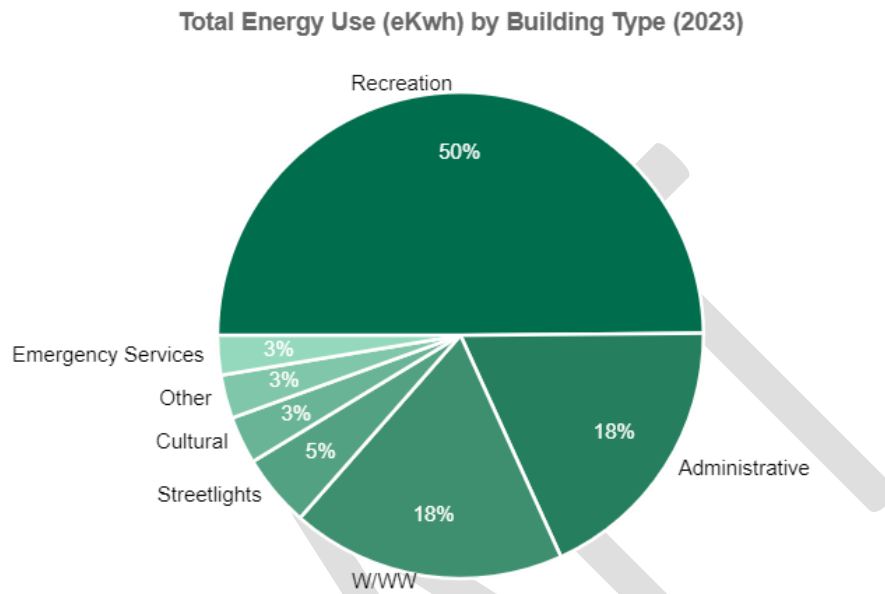
- Administrative offices and related facilities;
- Buildings or facilities related to the treatment of water or sewage;
- Cultural facilities, indoor recreational facilities and community centres;
- Fire stations and associated offices and facilities; and
- Storage facilities where equipment or vehicles are maintained, repaired or stored

**Table 1** outlines the Municipality's most recent energy consumption data submitted to the Ministry of Energy for the 2023 reporting period, serving as a baseline for proposing new conservation measures and energy reduction over the next five years.

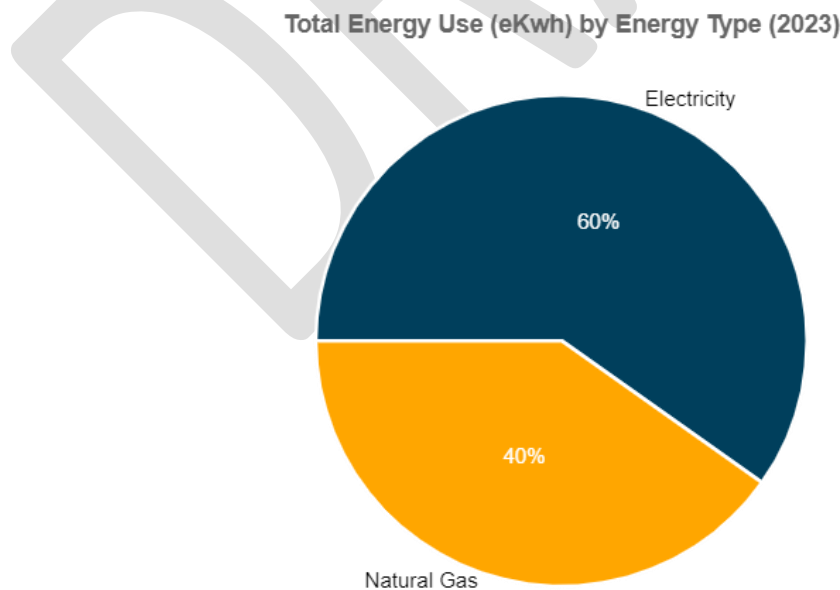
**Table 1:** Summary of 2023 Corporate Facility Energy Consumption & Emissions Report (for reportable under O. Reg 23/25 facilities only) (Data retrieved from LAS Energy Planning Tool)

<b>Facility Name</b>	<b>Facility Type</b>	<b>Total Energy (ekWh)</b>	<b>Electricity (ekWh)</b>	<b>Natural Gas (ekWh)</b>	<b>Emissions (GHG - kg)</b>
<b>Crediton Community Centre</b>	Cultural	95,733.65	38,705.00	57,028.65	11,247.15
<b>Dashwood Community Centre</b>	Cultural	32,442.00	11,399.00	21,043.00	4,068.01
<b>Dashwood Fire Station</b>	Emergency Services	30,064.75	7,587.00	22,477.75	4,214.70
<b>Exeter Cemetery</b>	Other	17,066.78	6,896.00	10,170.78	2,005.68
<b>Exeter Fire Station</b>	Emergency Services	97,983.31	14,534.00	83,449.31	15,259.03
<b>Exeter Lawn Bowling</b>	Administrative	1,503.00	1,503.00	N/A	TBD
<b>Exeter Sewage Lagoons</b>	W/WW	527,760.00	527,760.00	N/A	15,026.91
<b>Huron Park Fire Station</b>	Emergency Services	2,296.00	2,296.00	N/A	65.37
<b>Municipal Town Hall and Library</b>	Administrative	301,270.01	151,971.00	149,299.01	30,886.60
<b>Nelson Street Work Shed</b>	Administrative	159,033.08	45,826.00	113,207.08	21,443.76
<b>South Huron Landfill</b>	Other	9,799.00	9,799.00	N/A	279.01
<b>South Huron Recreation Centre</b>	Recreation	1,398,708.65	742,284.00	656,424.65	137,909.63
<b>Stephen Township Arena</b>	Recreation	980,833.13	312,973.00	667,860.13	127,720.17
<b>Stephen Township Work Shed</b>	Administrative	152,018.49	20,978.00	131,040.49	23,908.74
<b>Usborne Township Work Shed</b>	Administrative	204,841.14	29,706.00	175,135.14	32,001.46
	<b>Municipal Totals</b>	<b>4,011,352.99</b>	<b>1,924,217.00</b>	<b>2,087,135.99</b>	<b>426,036.22</b>

**Figure 1** shows the total energy use (eKwh) by building type for 2023 data. This figure includes all known municipal facilities that use energy (electrical and/or natural gas) and is not limited to only the facilities required under O. Reg 23/25. (Data retrieved from LAS Energy Planning Tool)



**Figure 2** shows the total energy use (eKwh) by energy type for 2023 data. This figure includes all known municipal facilities that use energy (electrical and/or natural gas) and is not limited to only the facilities required under O. Reg 23/25. (Data retrieved from LAS Energy Planning Tool)



When analyzing the energy consumption of the Municipality in 2023 (as shown in Figure 1), it becomes evident that specific facilities make a greater contribution to the overall totals than others. Of the reported buildings, the Municipality's recreational facilities are the largest consumer, accounting for 50% of total energy use. Second to the recreational facilities are the water/wastewater facilities which account for 18% of total energy use, followed by administrative offices with 18% of total energy use. These three facility types combined make up approximately 86% of energy use of all municipal facilities using either electricity and/or natural gas.

## 2019 CDM Plan Implementation

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### Completed Energy Projects (2019 CDM Plan)

A total of 13 projects were identified in the 2019 CDM plan as a priority for implementation within Municipal facilities over a five-year period.

- 6 projects were completed within the five-year period.
- 7 projects identified for implementation in the 2019 CDM plan were not completed based on further investigations which determined that the projects were not appropriate for the Municipality within the five-year period.
- 11 projects not identified within the 2019 CDM plan related to energy consumption were completed during the period.

**Table 2** provides a summary of the conservation initiatives implemented between 2019 and 2023. **Table 3:** Additional Energy conservation measures installed within the period of 2019-2024 (not included in 2019 CDM Plan).

**Table 2:** Energy conservation measures installed in accordance with the 2019 CDM Plan.

Facility	Description of Measure	Cost of Implementation <sup>1</sup>	Estimated Energy Savings (kWh/yr) <sup>2</sup>	Completion Year
Dashwood Community Centre	New LED lighting in kitchen	\$2,000	Unknown at this time	2020
Municipal Town Hall	Replacement of T8 to LED	\$3,000	Unknown at this time	2023
Stephen Township Arena	Replacement of existing ice surface lights with LED	\$20,000	Unknown at this time	2020
South Huron Recreation Centre	Replacement of existing ice surface lights with LED	\$20,000	Unknown at this time	2020
South Huron Recreation Centre	Replacement of T8 to LED	\$3,000	Unknown at this time	2021
Usborne Work Shed	Replacement of wall packs and lighting in Truck Bay	\$2,100	Unknown at this time	2020

<sup>1</sup> Cost of implementation obtained from 2019 CDM Plan. This amount may not represent actual costs.

<sup>2</sup> More investigations required to determined estimate energy savings.



**Table 3:** Additional Energy conservation measures installed within the period of 2019-2024 (not included in 2019 CDM Plan but completed within the same period).

Facility	Description of Measure	Cost of Implementation	Estimated Energy Savings (kWh/yr) <sup>3</sup>	Completion Year
Exeter Fire Station	Tube Heater	\$8,000	Unknown at this time	2021
Exeter Fire Station	Replacement of lighting to LED apparatus bay	\$2,500	Unknown at this time	2024
Municipal Town Hall	HVAC: Replacement of A/C and two Furnace units	\$73,000	Unknown at this time	2022 and 2024
Nelson Street Work Shed	Replacement of interior lighting	Unknown at this time	Unknown at this time	2020
Nelson Street Work Shed	Replacement of natural gas heaters in truck bay/shop	Unknown at this time	Unknown at this time	2020
South Huron Recreation Centre	Boiler Replacement	\$20,000	Unknown at this time	2023
Stephen Township Arena	Replacement of Chiller	\$216,433	Unknown at this time	2024
Stephen Township Arena	Replacement of BAC Evaporative Condenser	\$132,288	Unknown at this time	2024
South Huron Recreation Centre	Arena dehumidifier replacement	\$230,000	Unknown at this time	2024
Stephen Township Arena	Compressor, Shell and Tube Chiller and Surge Drum	TBD	Unknown at this time	2023
Usborne Work Shed	Replacement on-demand hot water heater	\$3500	Unknown at this time	2023

<sup>3</sup> More investigations required to determined estimate energy savings.

## Comparison of Energy Consumption (2019 and 2023)

Comparing energy consumption is essential for assessing performance, setting goals, monitoring progress, and making informed decisions to improve energy efficiency and reduce costs.

For the 2024 CDM Plan, 2019 and 2023 were chosen to compare energy consumption and emissions. 2019 represents the beginning of the previous CDM plan, with 2023 being the most recent reported energy consumption.

**Table 4:** 2019 Corporate Facility Energy Consumption & Emissions by Facility Type (Data retrieved from LAS Energy Planning Tool)

Facility Type	Total Energy (ekWh)	Electricity (ekWh)	Natural Gas (ekWh)	Emissions (GHG - kg)
<b>Administrative</b>	1,062,115.17	358,737.00	703,378.17	136,059.16
<b>Cultural</b>	120,594.10	75,713.00	44,881.10	10,291.32
<b>Emergency Services</b>	367,053.35	49,963.00	317,090.35	57,931.27
<b>Recreation</b>	2,171,073.44	855,259.00	1,315,814.44	260,138.95
<b>Water/Wastewater</b>	726,289.41	725,216.00	1,073.41	22,290.46
<b>Municipal Totals</b>	<b>4,447,125.47</b>	<b>2,064,888.00</b>	<b>2,382,237.47</b>	<b>486,711.16</b>

**Table 5:** 2023 Corporate Facility Energy Consumption & Emissions by Facility Type (Data retrieved from LAS Energy Planning Tool)

Facility Type	Total Energy (ekWh)	Electricity (ekWh)	Natural Gas (ekWh)	Emissions (GHG - kg)
<b>Administrative</b>	890,379.72	309,681.00	580,698.72	112,120.86
<b>Cultural</b>	152,922.65	74,851.00	78,071.65	16,019.78
<b>Emergency Services</b>	130,344.05	24,417.00	105,927.05	19,539.10
<b>Recreation</b>	2,379,541.78	1,055,257.00	1,324,284.78	265,629.80
<b>Water/Wastewater</b>	849,706.22	848,399.00	1,307.22	24,389.01
<b>Municipal Totals</b>	<b>4,402,894.42</b>	<b>2,312,605.00</b>	<b>2,090,289.42</b>	<b>437,698.55</b>

Based on Table 4 and Table 5, the following decreases from 2019 and 2023 reported energy data (for reportable municipal facilities<sup>4</sup>) can be noted:

- Total energy consumption decreased by 0.99%.
- Total greenhouse gas emissions decreased by 10.06%.
- Total natural gas consumption decreased by 12.25%.

The following increases from 2019 and 2023 can be noted:

- Total electricity consumption increased 11.99%.

## **Energy Conservation Strategies (2024 - 2028)**

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The Municipality will continue to implement the following strategies, as identified within the 2019 CDM Plan, over the period of 2024 to 2028:

- **Policies and Procedure:** develop policies and procedures with an inclusion of an ‘energy conservation and efficiency’ lens.
- **Procurement:** outline requirements for procurement to ensure that the most energy efficient and cost-effective equipment is purchased.
- **Buildings (new construction or upgrades):** considerations to ensure that the most energy efficient and cost-effective design is utilized for the project.
- **Energy Monitoring:** continue to complete detailed energy consumption comparisons monitoring reviews to describe existing conditions and future opportunities to address inefficiencies.
- **Technical Standards and Financial Viability:** the Municipality initiated utilizing the Energy Star Portfolio Manager. The Municipality will continue to populate and expand the usage of the program with facility specific data. The program, along with the Energy Planning Tool (EPT) program, will be utilized for future energy project to identify the most appropriate energy saving opportunities.
- **Energy Training and Engagement:** providing staff training opportunities to increase technical knowledge to ensure an “energy conservation and efficiency’ lens for all municipal decisions. The training and engagement

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<sup>4</sup> O. Reg 23/25 does not require energy reporting for facilities related to the pumping of sewage or water (previously required under regulation). Data from 2019 and 2023 include facilities related to the pumping of sewage and water due to Energy Planning Tool program configuration, which are not required to be reported under the current regulations.

initiative will broaden the number of staff familiar with energy conservation and efficiency concepts and technologies across all Municipal operations.

### **Comprehensive Energy Audit of Municipal Facilities**

It is recommended that the Municipality undertake a comprehensive energy audit of all municipal facilities required to report energy consumption under O. Reg 23/25 during the 2024 – 2028 period to evaluate energy consumption, identify areas of energy waste or inefficiency, and recommend cost-effective measures to improve energy efficiency. The Building Condition Assessment completed for municipal facilities in 2023/2024 findings serve as a foundation for an energy audit as it describes the components of the facilities.

The energy audit shall provide the following information:

- **Assess Energy Usage:** Determine how and where energy is being used within the facility, including electricity, natural gas, water, and other energy sources.
- **Identify Opportunities for Improvement:** Identify opportunities to reduce energy consumption and costs through various measures, such as upgrading equipment, improving building envelope efficiency, optimizing HVAC systems, and implementing energy management strategies.
- **Quantify Potential Savings:** Estimate the potential energy savings and associated cost savings that could be achieved by implementing recommended energy efficiency measures.
- **Prioritize Recommendations:** Prioritize energy efficiency measures based on their potential impact, cost-effectiveness, and return on investment (ROI).
- **Evaluate Technical Feasibility:** Assess the technical feasibility of implementing recommended energy efficiency measures, considering factors such as equipment compatibility, space constraints, and operational requirements.
- **Consider Financial Incentives:** Identify available financial incentives, rebates, or financing options that can help offset the cost of implementing energy efficiency measures and improve the overall economics of the project.
- **Support Decision-Making:** Provide decision-makers with the information and analysis needed to make informed decisions about investing in energy efficiency improvements and implementing energy management initiatives.

The findings and recommendations of an energy audit will serve as a roadmap for implementing energy-saving measures and improving the overall energy

performance of municipal facilities. The recommendations can be incorporated in both operating maintenance and capital tendering processes.

It is recommended that the energy audit have a strong focus on evaluating and identifying significant energy reducing projects for the recreation, water and wastewater, and administration facilities given their substantial energy consumption (86% of total municipal energy use) in 2023.

It should also be noted that funding is often available for projects related to energy audits, which should be utilized by the Municipality.

### **Energy Reduction Target**

Once the energy strategies have been implemented and the findings of a comprehensive energy audit are known, the Municipality can set an appropriate reduction target at that time. An energy reduction target of 1 – 5% reduction target was identified in the 2019 CDM Plan; it is assumed that the target reduction for the 2024 CDM plan, once identified and verified, will fall within this range based on energy consumption data trends.

### **Proposed Energy Projects (2024 CDM Plan)**

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**Table 6** outlines the proposed energy projects planned for execution over the next five-years. These initiatives were chosen following consultation with various departments and projects identified by various studies and reports. The list comprises a mix of measures, including some previously included in the previous CDM plan that were not completed.

It's important to highlight that the proposed energy projects listed in **Table 6** are currently under consideration as potential options for the Municipality. As the feasibility of these measures is assessed, financial support may be secured through external funding opportunities, such as grants, or included in the Municipality's capital budget forecasting. While the direct energy savings from these initiatives cannot be precisely determined at this stage, it is anticipated that if implemented within the next five years, significant energy savings will be realized.

**Table 6:** Proposed Energy conservation proposed for completion 2024 to 2028

Facility	Description of Measure	Estimated Cost of Implementation <sup>5</sup>	Estimated Energy Savings (kWh/yr) <sup>6</sup>	Proposed Completion Year <sup>7</sup>
Exeter Lawn Bowling Club	Replacement T12 fluorescent tube lighting with LEDs	To be determined	To be determined	2025 - 2025
Municipal Town Hall	Replace remaining T12 with LEDs	To be determined	To be determined	2025 - 2025
Municipal Town Hall	Generator Replacement	\$65,000	N/A	2026
Nelson Street Work Shed	Replacement of Wall packs with LED	To be determined	To be determined	2024-2028
Nelson Street Work Shed	Replacement of exterior yard lighting with LED	To be determined	To be determined	2024-2028
Stephen Township Arena	Replacement remaining fluorescent tube lighting with LEDs	To be determined	To be determined	2025
South Huron Recreation Centre	Replace remaining T12 fluorescent tube lighting with LEDs	To be determined	To be determined	2025
South Huron Recreation Centre - Baseball Diamonds	Replacement of diamond lighting	\$407,000	To be determined	2025
Usborne Work Shed	Replacement of existing wall packs with LEDs	To be determined	To be determined	2024 - 2025

<sup>5</sup> Only projects with accurate estimates display cost. More information required for projects without a value displayed.

<sup>6</sup> Actual savings are based on specifications and usage patterns. More information required.

<sup>7</sup> Project implementation (approval and timing) is dependent on the findings of various studies and approval of the projects during budget process. Proposed year may differ from year installation occurs.

## Looking Ahead

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Through the 2019 CDM plan, the Municipality of South Huron successfully reduced total energy consumption by 0.99%. The newly proposed conservation measures outlined in this plan will continue to steer the Municipality towards further energy reduction over the next five years. While the goal is to implement many of these initiatives early in the five-year period, adjustments may occur as new opportunities emerge and financial support is secured. Ultimately, the 2024 CDM plan aims to support the Municipality in lowering energy consumption and greenhouse gas emissions, resulting in cost savings and a diminished impact on the environment.