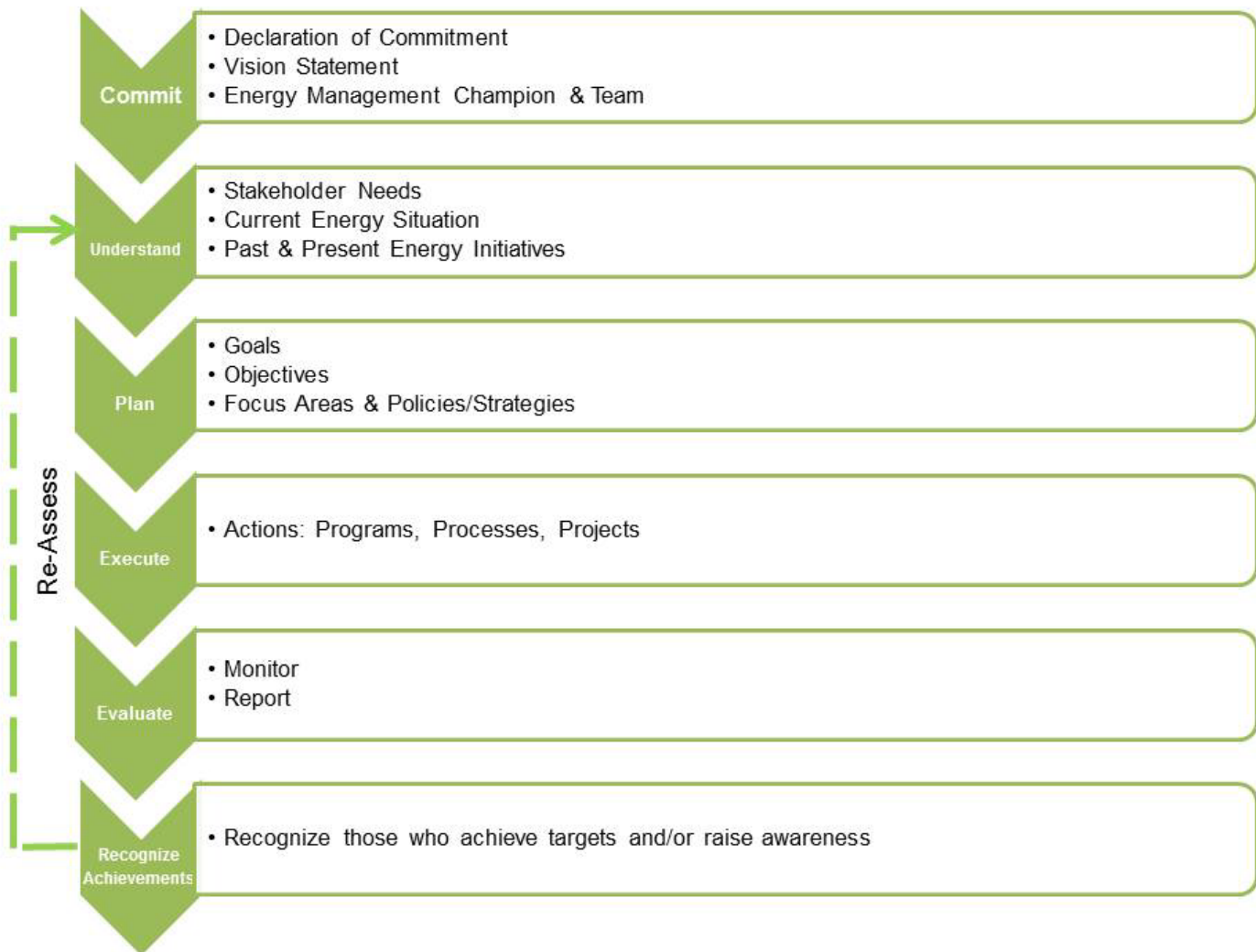




**CONSERVATION AND DEMAND MANAGEMENT
PLAN
(2024-2029)**

Township of Mulmur Conservation and Demand Management Plan

Figure 1 - Energy Management Plan Framework



1.0 Introduction & Background

Successful energy management depends on the integration of energy efficient practices into the “business as usual” conduct of the organization, is based on a regular assessment of energy performance, and requires the implementation of procedures and measures to reduce energy waste and increase efficiency. Regardless of the size of the municipality, the common element of successful energy management is the allocation of staff and resources to continually improve energy performance.

2.0 Past Achievements

Energy management benefits manifest in many ways, including occupant behavioural change, equipment optimization, utility billing savings, and enhanced capital planning and operator awareness. All of these results support a culture of energy conservation that ultimately saves money. The following actions were proposed as part of the 2019-2024 Conservation and Demand Management Plan. The table summarizes the results achieved with green highlighting 100% completion of the action and yellow highlighting 70-99 % completion.

Objective	Action	Results Achieved
Training	As part of Orientation Program – provide new staff with energy management information	<ul style="list-style-type: none"> Limited energy management info provided.
Awareness	Improve staff education and awareness through training, staff meetings and discussions	<ul style="list-style-type: none"> Limited staff education and training
Awareness	Communicate to the organization the name of the Energy Leader and distribute the Energy Management Plan	<ul style="list-style-type: none"> Completed – posted on Township website
Energy Efficiency	Set outside lights on a timer	<ul style="list-style-type: none"> Admin building and Public works are on a timer.
Energy Efficiency	Run dishwashers on off peak hours	<ul style="list-style-type: none"> Completed manually by Admin staff.
Energy Efficiency	Turn off all electronic devices such as coffee makers, printers, calculators, phone chargers etc. at night and on weekends	<ul style="list-style-type: none"> Completed regularly by Admin staff
Energy Efficiency	Enhance Building Envelope— new front doors, window replacement program, and high efficiency lighting.	<ul style="list-style-type: none"> Completed
Energy Efficiency	Install an electric car charging station in the parking lot of the administration building	<ul style="list-style-type: none"> Installed two level 2 electric vehicle chargers in partnership with County and Flo, a private charging company.
Energy Efficiency	Install rooftop solar panels on the Honeywood Arena through the Solar Energy FIT Program.	<ul style="list-style-type: none"> Leaks on the flat roof and future replacement have halted any additional work towards solar panels.
Energy Efficiency	Regularly track, monitor and analyze energy consumption in facilities to identify consumption, irregularities and	<ul style="list-style-type: none"> Energy consumption data is reviewed

Awareness	take corrective action in a timely manner.	regularly and acted on accordingly.
Procurement	<p>Fleet Procurement – Selecting vehicle engines with better fuel economy under our operating conditions.</p> <ul style="list-style-type: none"> • Specifying transmissions that improve fuel efficiency. <ul style="list-style-type: none"> • Setting specifications so that the equipment is the right size for the work 	<ul style="list-style-type: none"> • Continue to consider fuel economy as a key consideration in vehicle purchases.
Procurement	Purchase brand new rather than used Zamboni to decrease repair & maintenance costs and improve energy efficiency	<ul style="list-style-type: none"> • Completed
Energy Efficiency Awareness	<p>Fleet Preventative Maintenance</p> <ul style="list-style-type: none"> • Program to schedule routine maintenance and inspection. • Operator awareness/training. • Equipment idling procedures. • Use of LED lighting for vehicles and equipment. • Use of inverters rather than generator for small tools. 	<ul style="list-style-type: none"> • All the fleet preventative maintenance measures except for equipment idling procedure have been implemented.
Energy Efficiency	<p>Fleet Replacement Plan – long term planning to ensure the useful life of vehicles.</p> <ul style="list-style-type: none"> - Assign appropriate equipment for intended use. - Consider alternate uses for equipment. 	<ul style="list-style-type: none"> • Continued to evaluate opportunities to right size vehicle uses.
Energy Efficiency	<p>Explore potential for day lighting in areas with high sun exposure.</p> <p>Shut some office lights off where natural light available.</p>	<ul style="list-style-type: none"> • Completed for Administration building.

Legend- 100 % completed, 70-99% completed, <70 %

Other significant energy achievements over the 2020-2024 timeframe include LED streetlighting conversion of all 92 lights in partnership with CID Powerline Electrical. This resulted in energy cost avoidance and a reduction of 31-40% in energy efficiency.

The Township of Mulmur achieved a reduction of 0.43% in hydroelectricity consumption between 2020 and 2023. An increase in GHG emissions of 34.8% from 2020 to 2023.

The commitment to renewable energy continued throughout the five-year CDM plan. A 100-kW rooftop solar system on the Public Works facility and Town Hall buildings continued to operate without issue. The primary source of heating and cooling for the Town Hall building continued to be geothermal.

3.0 Current Energy Situation

The regular collection and analysis of energy use information establishes the basis for energy management energy use and cost control. Quantifying the Township’s energy consumption and costs allows staff to identify where energy consumption deviates from established patterns and targets and where corrective action is required.

As part of the Township’s reporting requirements to meet Energy Conservation and Demand Management Plan regulations (O.Reg 25/23), the Township has compiled energy consumption data for the main Township facilities. Table 1 highlights this information.

Table 1: Township Electricity Consumption

Property name	Hydro used (kWh)			
	2020	2021	2022	2023
Mulmur Melancthon Fire Hall	29,893.2	31,782.8	26,551.4	22,994.9
North Dufferin Community Centre-Ice Rink	198,183.0	217,950.1	187,346.9	213,933.0
North Dufferin Community Centre	24,056.6	29,243.7	28,514.7	35,279.1

Property name	Hydro used (kWh)			
	2020	2021	2022	2023
Mansfield Water Pumping Station	65,417.6	40,443.3	36,384.4	35,833.1
Public Works Building	38,061.1	44,816.0	49,744.3	43,490.4
Town Hall	33,100.8	40,200.9	39,951.5	35,229.5

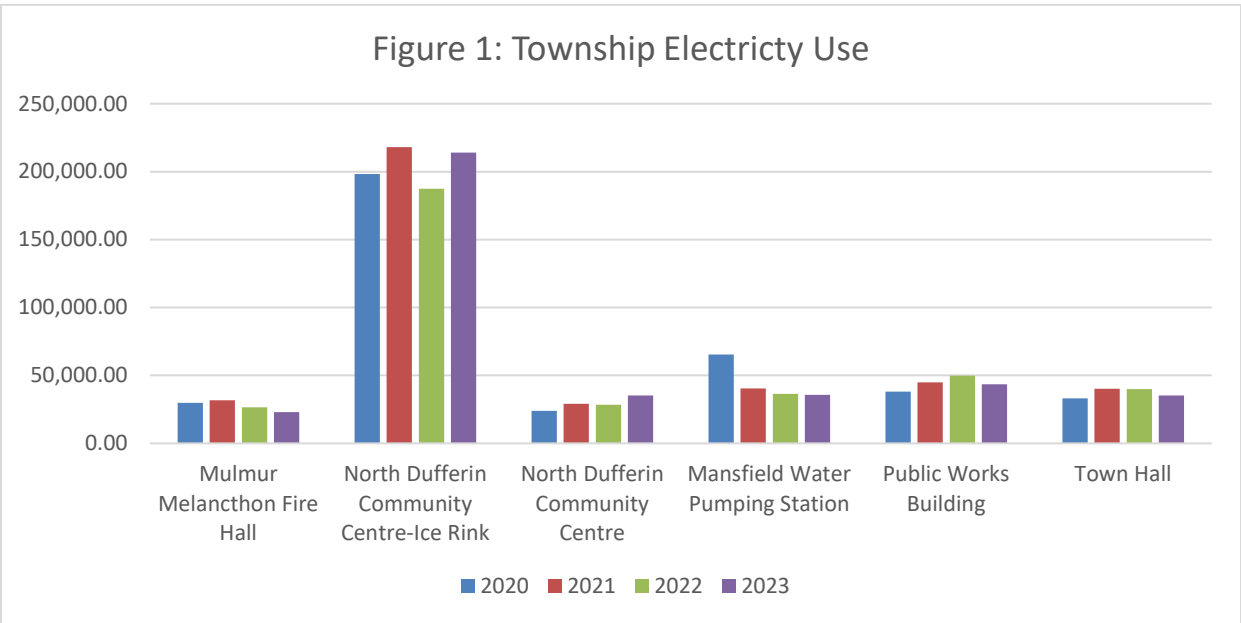


Table 2: Township Heating Fuel

Property name	Total L used (propane and oil)			
	2020	2021	2022	2023
Mulmur Melancthon Fire Hall	8,3203.2	11,091.8	8,582.7	10,668.7
North Dufferin Community		5,759.9	8,759.5	7,064.7

Property name	Total L used (propane and oil)				
	2020	2021	2022		2023
Centre-ice plant					
North Dufferin Community Centre-	7,196.1	7,715.6	12,025.8		11,579.7
Public Works Building	11076.1	13,780.7	9,139.3	12,075.3	19,017.6

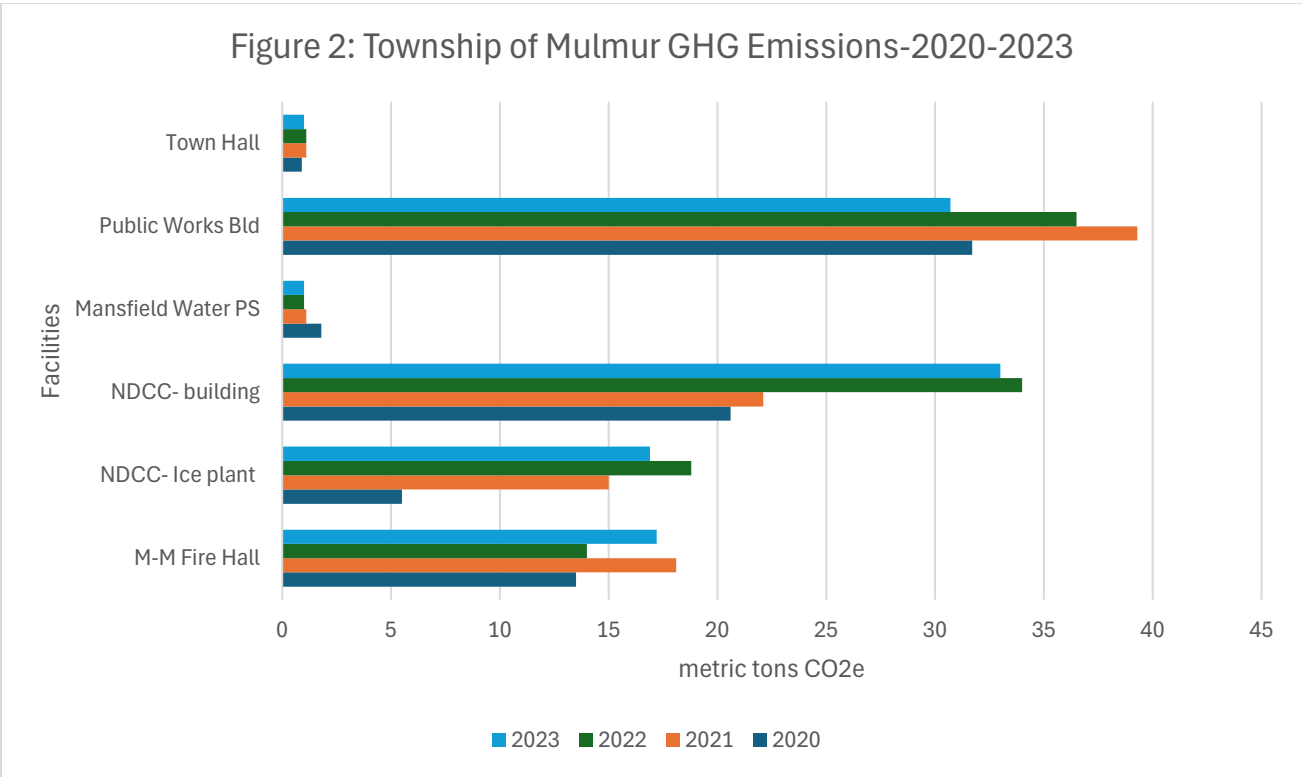
3.1 Greenhouse Gas (GHG) Emissions

The Township of Mulmur is committed to reducing greenhouse gas (GHG) emissions that contribute to climate change and adversely affect regional air quality. To this end, the Township of Mulmur has joined the Partners for Climate Protection (PCP) program; a voluntary five-milestone framework used to guide municipalities to reduce greenhouse gas. Under the Township’s commitments to the PCP program and the Energy Conservation and Demand Management Plan regulations (O.Reg 25/23), annual greenhouse gas emissions are also reported. Table 3 highlights equivalent carbon a measure of greenhouse gas warming potential, for the Township’s largest operational sources.

Table 3: Township CO² Emissions by Source

Property name	Total GHG Emissions (metric tons CO ² e)			
	2020	2021	2022	2023
Mulmur Melancthon Fire Hall	13.5	18.1	14	17.2
North Dufferin Community Centre-Ice Rink	5.5	15	18.8	16.9
North Dufferin Community Centre-Building	20.6	22.1	34	33
Mansfield Water Pumping Station	1.8	1.1	1	1
Public Works Building	31.7	39.3	36.5	30.7

Property name	Total GHG Emissions (metric tons CO ² e)			
	2020	2021	2022	2023
Town Hall	0.9	1.1	1.1	1
Total	74	96.7	105.4	99.8



4.0 Goals and Objectives

4.1 Goal

The Township of Mulmur’s Energy Conservation and Demand Management Plan is guided by some of the same principles established within the mission of the recently updated Strategic Plan. Namely, the Township will provide quality services in a fiscally responsible manner so that future generations will prosper. Striving to drive down energy costs aligns well with fiscal responsibility.

Commitment towards these goals will guide the Township of Mulmur to comply with O. Reg 25/23 which requires public agencies to prepare, make available, and implement energy and conservation demand management plans.

4.2 Objectives

To meet the strategic goals of the Energy Conservation and Demand Management Plan, there are several objectives that align with its development and implementation:

- To continue creating a conservation culture that embraces energy efficiency and cost savings.
- To reduce energy operating and maintenance costs by implementing best practices and advanced technologies, where possible, and taking advantage of all available resources and funding for energy projects.
- To identify and seize renewable energy generation opportunities where possible.
- To reduce GHG reductions from 2024 levels by 5% by Dec 31, 2029.

5.0 Our Plan

Strategic

- **Long-term strategic issues:** We will develop and implement energy policies, organize for energy management, develop the required skills and knowledge, manage energy information, communicate with our stakeholders, and invest in energy management measures.
- **Links with other municipal plans and management processes:** As an integral component of the management structure, the energy management plan is to be coordinated with the municipality's budget planning, strategic plan, purchasing policy, asset management plan and policy development process.
- **Departmental responsibilities:** We will incorporate energy budget accountability into our corporate responsibilities.

6.1 Our Execution – Action List

All work completed on the plan to date culminates in the development of actions for execution. Generally, the action can be classified as a program, process, or project. In addition, all actions are linked back to particular objectives developed earlier in the plan to ensure that they support the objectives, which supports the goals, and will move the Township towards its vision.

<i>Type of Measure</i>	<i>Conservation Measure</i>	<i>Action</i>	<i>Anticipated savings</i>	<i>Owner</i>	<i>Target Date</i>
Behavioral	Training	<ul style="list-style-type: none"> As part of Orientation Program – provide new staff with energy management information 	Estimated cost savings \$750 (2% of facility energy usage)	Director- Corporate Services	Q2–2025
Technical	Water loss reduction	<ul style="list-style-type: none"> Reduce water loss from the Mansfield municipal water system. Monitor water losses and strategies to reduce water losses from other rural, small water systems. Set a water loss reduction target from 2024 baseline 	Estimated cost savings \$900 (20% of facility energy usage)	Director – Infrastructure	Q4-2024 Q4-2025 Q1-2026
Technical	Evaluate additional rooftop solar	<ul style="list-style-type: none"> Prepare a business case for solar on additional municipal infrastructure: Investigate installing solar on Mansfield Well building and pavilion, and Honeywood Fire Station and Arena solar and signage 	Estimated cost savings of \$ 375 (8% of facility usage)	Director of Infrastructure	Q1-2026 Q4-2026
Program	Comms.	<ul style="list-style-type: none"> Establish a new engagement campaign to target occupant behaviour at the Township Admin office and Public Works facility. Share progress on greenhouse gas reduction efforts in one of the monthly Township newsletters. Share progress on greenhouse gas reduction efforts at a community Town hall meeting 	Estimated cost savings of \$ 200 (2% of facility energy usage at two facilities)	Office & Comms Coordinator Director of Infrastructure	Q4- 2025 Q1- 2026 Q2- 2026

<i>Type of Measure</i>	<i>Conservation Measure</i>	<i>Action</i>	<i>Anticipated savings</i>	<i>Owner</i>	<i>Target Date</i>
Behavioral	Staff Awareness	<ul style="list-style-type: none"> Share building energy management and performance with arena staff 	Estimated cost savings of \$ 200 (2% of facility energy usage at two facilities)	Public Works Foreperson	Q2-2025
Organizational	Monitoring	<ul style="list-style-type: none"> Benchmark GHG emissions from facilities against other rural municipalities Explore the possibility of deploying energy submetering on the NDCC ice refrigeration plant and Mansfield Water system large pumps. 	Estimated cost savings of \$ 700 (2% of facility energy usage at the facility)	Director of Infrastructure	Q1- 2027
Organizational	Energy efficiency	<ul style="list-style-type: none"> Investigate, document, and communicate funding sources for energy projects, including government and utility grants and incentives. 	N/A	Treasury assistant	Ongoing
Organizational, technical	Monitoring	<ul style="list-style-type: none"> Complete an energy audit on the Township facility with the highest energy usage 	Estimated savings of \$3,500 (10% of energy costs)	Director of Infrastructure	Q2, 2028

6.2 Our Evaluation

The results of our energy management plan will be evaluated by monitoring our progress towards our targeted performance, and by reporting the findings to our various stakeholders. In addition, our evaluation will include a review and update of the energy plan as necessary. The evaluation process is ongoing and provides critical feedback that leads to continuous improvement.

The following performance indicators will be used to help monitor progress in the implementation of the Energy Conservation and Demand Management Plan.

- Corporate Greenhouse gas emissions per resident served (eCO₂-equivalent carbon dioxide/pp);
- Energy Utilisation Index (EUI) (ekWh/ft², ekW/ft², ekWh/user/y);
- Total Energy Cost Intensity (\$/ft²/yr); and

- Employee Awareness Index (Hours of training/employee/year)

These performance indicators will be reviewed annually to evaluate their effectiveness in advancing the key objectives and modified accordingly.

Monitoring Progress

- Ongoing monitoring of consumption: An energy monitoring and targeting system will be implemented and maintained as an integral component of our management information system.

Review & Reporting

Following the approval of Council at their June 2024 meeting there will be regular reporting.

- Reports to Council: Annual energy performance summary reports will be generated to apprise Council of the progress made towards our corporate energy goals and objectives.
- Reports to stakeholders (community): The general public will be apprised of energy performance of municipal facilities and the impact of implemented energy management measures where appropriate.