Energy Conservation and Demand Management Plan 2024 Update

Municipality of Trent Lakes

Executive Summary

On June 11, 2014, the Municipality of Trent Lakes (Municipality) adopted an Energy Conservation and Demand Management Plan in compliance with Ontario Regulation 397/11 – *Energy Conservation and Demand Management Plans*. The regulation also required municipalities and other public sector groups to report annually on energy use and greenhouse gas (GHG) emissions for buildings and facilities in which the agency conducts its operations, that are heated or cooled, or are related to the treatment or pumping of water or sewage. The Municipality began this reporting in 2013 for the year 2011 and has continued to do so annually as required.

O. Reg. 397/11 was replaced with Ontario Regulation 25/23 (Formerly Ontario Regulation 507/18) – *Broader Public Sector: Energy Reporting and Conservation and Demand Management Plans* on February 23, 2023. The new regulation still requires the Municipality to develop and publish a five-year update to the Municipality's Energy Conservation and Demand Management Plan on or before July 1, 2024 and on or before July 1 in every fifth year thereafter.

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1.0 Introduction

1.1 Background

The Municipality of Trent Lakes is committed to energy management as a key component of its operations. It understands the social, environmental, and financial implications of energy management and is striving to deliver improvements in a responsible way. Through proactive monitoring of energy usage and forward-thinking facility renovations and building service equipment upgrades, the Municipality is committed to managing and reducing energy consumption across its facilities and operations.

On January 1, 2012, Ontario Regulation 397/11 – *Energy Conservation and Demand Management Plans* came into force. The regulation required municipalities, municipal service boards and other public sector groups (e.g. schools, hospitals, etc.) to report annually on energy use and greenhouse gas (GHG) emissions for buildings and facilities in which the agency conducts its operations, that are heated or cooled or are related to the treatment or pumping of water or sewage. In addition, public agencies were required to develop five-year Energy Conservation and Demand Management Plans and publish them online by July 1, 2014.

In 2013, the Municipality of Trent Lakes (Municipality) reported its energy usage for the year 2011 and has continued this reporting annually in compliance with the regulation. The Municipality also adopted an Energy Conservation and Demand Management Plan (Energy Plan) on June 11, 2014.

A five-year reporting update to the Municipality's Energy Plan was prepared as required July 1, 2019. There is a requirement to once again update this plan by July 1, 2024 in accordance with Ontario Regulation 25/23 – *Broader Public Sector: Energy Reporting and Conservation and Demand Management Plans.*

Since 2014, the Municipality has completed many energy conservation measures, both large and small. Small actions have included removing rarely-used, high-energy appliances, replacing light fixtures with LED alternatives, and installing programmable, remote-access thermostats. Large projects included replacing inefficient furnaces and HVAC systems with high-efficiency alternatives and decommissioning the old Oak Shores Firehall 4 and replacing it with a new Nogies Creek Firehall 4 that was built to LEED standards. The Municipality has also adopted several operational strategies to conserve energy including a regular service schedule for all HVAC systems to ensure maximum efficiency, fostering a staff culture of energy reduction, and monitoring grant and funding opportunities for energy conservation projects.

Going forward, the Municipality will continue to utilize the following five strategies to maintain the progress towards its energy conservation and GHG emissions reduction objectives:

1. Institutionalize energy efficiency and low carbon thinking into the organization;
2. Enhance operational efficiency of existing buildings;
3. Build Municipal facilities to ensure high environmental performance;
4. Improve environmental performance of existing Municipal facilities; and,
5. Utilize renewable energy sources.

The Municipality's commitment to energy conservation and reducing GHG emissions has allowed the Municipality to hold its total gross GHG emissions at a consistent level, despite a growth in the Municipality's building inventory. However, many opportunities for further energy conservation remain. Through proactive monitoring of energy consumption and forward-thinking facility renovations and building service equipment upgrades, the Municipality is striving to manage its energy usage in a responsible way.

Table 1 outlines these annual compliance reporting requirements.

Table 1: Annual Compliance Reporting Requirements

Compliance Item	**Due Date**	**Status**
Energy Consumption and GHG Emissions Template for Year 2011	July 1, 2013	Complete
Energy Consumption and GHG Emissions Template for Year 2012	July 1, 2014	Complete
Energy Conservation and Demand Management Plan (Initial)	July 1, 2014	Complete
Energy Consumption and GHG Emissions Template for Year 2013	July 1, 2015	Complete
Energy Consumption and GHG Emissions Template for Year 2014	July 1, 2016	Complete
Energy Consumption and GHG Emissions Template for Year 2015	July 1, 2017	Complete
Energy Consumption and GHG Emissions Template for Year 2016	July 1, 2018	Complete
Energy Consumption and GHG Emissions Template for Year 2017	July 1, 2019	Complete
Energy Conservation and Demand Management Plan (Five-Year Update)	July 1, 2019	Complete
Energy Conservation and Demand Management Plan (Five-Year Update)	July 1, 2024, and by every fifth anniversary thereafter (ongoing)	Complete

1.2 Purpose and Scope

The requirements for the five-year update to the Energy Conservation and Demand Management Plan are generally consistent with those of the original plan with an additional five-year review element. The Energy Plan includes:

- Energy-related information relevant to the Municipality, including other energy-related plans, strategies, goals, and objectives for managing its energy needs and associated targets.
- Information about any/all renewable energy generating facilities owned by the Municipality, and energy generation summaries for each facility and the Municipality overall.
- Information about the Municipality's consideration of utilizing ground source energy, solar energy, or heat pump technologies (thermal, air, water, etc.) in current and future measures to conserve energy associated with designated facilities.

More specifically, the updated Energy Plan is to include the following components:

- A summary of annual energy consumption and associated GHG emissions for relevant buildings and facilities.
- A summary of past, current and proposed measures to which the Municipality has committed to conserve and reduce energy consumption.
- An updated assessment and forecast of energy demand reductions related to current and future conservation measures.
- Details of any proposed changes to be made to assist the Municipality in reaching its energy conservation targets.

1.3 Data Assessment and Compliance Reporting Methodology

The Municipality currently reports the energy consumption and GHG emissions annually for the 13 facilities listed in Table 2. The Municipality utilizes the Energy Planning Tool (EPT) provided by Local Authority Services (LAS) to track the consumption of electricity, propane and heating oil for each of these facilities. As required by the regulation, the propane and heating oil consumption is converted into equivalent kiloWatt hours (ekWh). The regulation also requires the following data:

- GHG emission in tonnes CO2e/yr – GHG emission in tonnes of equivalent carbon dioxide per year.
- Energy Intensity in ekWh/m² – Equivalent kiloWatt hours per gross square metre of building.

This data is entered into the “Energy Consumption and Greenhouse Gas Emissions Template” as prescribed by the Ministry of Energy and Electrification. These reports are included in Appendix A for the years 2019 to 2023.

Table 2: Facilities Included on Energy Consumption and GHG Emissions Report

Type of Facility	**Facility**	**Additional Notes**
Community Centre	Cavendish Hall/Library	
Community Centre	Deer Bay Hall	
Community Centre	Galway Hall	
Community Centre	Lakehurst Hall	
Firehall	Buckhorn Firehall 1	
Firehall	Cavendish Firehall 2	
Firehall	Galway Firehall 3	
Firehall	Nogies Creek Firehall 4	
Library	Buckhorn Library	
Municipal Centre	Municipal Office and Council Chambers	
Public Works Depot	49 Depot	
Public Works Depot	Buckhorn Depot	
Public Works Depot	Galway Depot	

2.0 Commitment

The Municipality of Trent Lakes is committed to energy management as a key component of its operations. It understands the social, environmental, and financial implications of energy management and is striving to deliver improvements in a responsible way. Through proactive monitoring of energy usage and forward-thinking facility renovations and building service equipment upgrades, the Municipality is committed to managing and reducing energy consumption across its facilities and operations.

As part of this commitment, the Municipality joined with the rest of the Greater Peterborough Area’s member communities in 2012 to develop a Climate Change Action Plan (CCAP) aimed at reducing GHG emissions. A specific chapter is dedicated to each community that outlines their individual action plan and emissions reduction targets and overarching goal to:

- Reduce greenhouse gas emissions.
- Reduce the use of fossil fuels.

- Lower energy consumption.
- Adapt to changing climate.

The Municipality adopted the Greater Peterborough Area Climate Change Action Plan on October 18, 2016.

In 2022 and 2024, Council approved an update to the Municipality's Asset Management Plan (AMP). The update includes several items related to energy consumption, further integrating the Municipality's commitment to energy management as a key component of its operations.

The Municipality committed to including green initiatives in Quarterly Reporting, as well as creating an Environmental Advisory Committee in January 2024 to assist with the goal in the Community Strategic Plan 2023-2026 of becoming better stewards of the environment. The Economic Development Strategic Plan 2023-2026 also speaks to the importance of green technologies and ensuring economic growth while maintaining environmental sustainability with a direct link to natural surroundings. Furthermore, the Community Improvement Plan Update has a commitment to include energy and environmental issues.

2.1 Goals and Objectives

The Municipality's 2019 Energy Conservation and Demand Management Plan identified six goals and six objectives for the Municipality. Progress has been made on five of these six goals and objectives. Integrating alternative and renewable energy sources in the Municipality's facilities has not yet been feasible. This goal will continue to be investigated as an opportunity for future energy conservation measures.

These goals and objectives are presented below in Table 3. There is also a status update provided in this Table.

Table 3: Energy Conservation and Demand Management Goals and Objectives			
	Goals	**Objectives**	**Status**
1	Reduce energy consumption and GHG emissions in the Municipality owned and operated facilities.	Set up an energy baseline, using the average energy consumption over a three-year period, with the aim of reducing energy consumption.	Ongoing
2	Promote employee and community energy conservation when using Municipality owned and operated facilities.	Provide training and guidance to Municipal staff and facility end users to conserve energy, explaining the benefits both financially and environmentally to the community.	Ongoing
3	Monitor, measure and manage consumption in the Municipality owned and operated facilities.	You need to measure to manage. Appoint a staff member to monitor and report on a monthly basis the energy usage across the Municipality, compared with the baseline and previous year.	Ongoing
4	Explore the usage of alternative and renewable energy.	Carry out studies on the feasibility of installing alternative and renewable energy in the Municipally owned and operated facilities and rolling out pilot schemes on the outcome of the studies.	Future Planning
5	Promote energy efficiency in Municipality owned and operated facilities.	Municipal Senior Management lead by example in their approach to energy conservation and management and purchasing.	Ongoing
6	Secure funding to implement energy efficiency savings.	Prior to budgeting and implementing an energy conservation measure, check and secure funding available for a Municipality on local, provincial and federal levels.	Ongoing

2.2 Common Goals

After reviewing plans from other local Municipalities, Townships and Peterborough County, these plans align with other local bodies of government, with the goal of reducing energy consumption within the entire County. Below are some of the commons goals throughout the County, that the Municipality of Trent Lakes will continue to uphold:

- Create a culture of conservation through education of staff and clear communication through all departments.

- Improve reliability of equipment by updating to new energy efficient equipment which will also reduce maintenance.
- Continue to monitor & assess energy use throughout the Municipally owned buildings and make changes whenever possible.
- Provide internal and external stakeholders with a clear vision and updates regarding energy performance and use. This will in turn hold the Municipality accountable for their energy consumption.

3.0 Energy Conservation Actions

The following section details actions that the Municipality has completed to conserve energy and reduce GHG emissions.

3.1 Community Centres

Galway Hall
2021 – New exterior insulation and siding, LED Emergency Lights
2023 – Full Kitchen renovation including LED lighting and energy efficient appliances

Lakehurst Hall
2022 – New water heater
2023 – Remote access thermostats

3.2 Firehalls

All Firehalls
2020 – In Winter, heat is kept at 15 degrees in truck bays when no staff are present

Cavendish Firehall 2
2023 – New entrance door with frame, weather stripping and cladding

3.3 Library – Buckhorn Branch
2022 – New Well pump and pressure tank

3.4 Municipal Office and Council Chambers
2021 – LED Emergency Lights
2023 – Remove old oil furnaces and replaced with HE propane, new HE A/C unit

3.5 Public Works Depots

49 Depot
2019 – Ongoing maintenance of furnace to ensure equipment is running efficiently
2022 – Replacement of old lights with LED lights

Buckhorn Depot
2019 – Ongoing maintenance of furnace to ensure equipment is running efficiently
2022 – Replacement of old lights with LED lights 2022

Galway Depot
2019 – Ongoing maintenance of furnace to ensure equipment is running efficiently

3.6 Operational Strategies

In addition to the completed actions outlined above, the Municipality has established several operational strategies to conserve energy which include:

- Transferring all unspent budget funds for electricity and fuel to reserves to be used for future energy conservation initiatives.
- Setting a regular service schedule for all Municipal furnaces and air conditioning units to ensure maximum efficiency.
- Providing training to all employees and facility end users on energy-saving practices and fostering a staff culture of conservation.
- Monitoring grant and funding opportunities for energy conservation projects.

4.0 Results and Analysis

The following section includes an analysis of the Municipality's total gross GHG emissions for all the facilities on which the Municipality reports.

Energy consumption and GHG emissions data is also presented for each facility. To allow for comparisons between facilities of varying sizes, energy usage and GHG emissions are presented as "Energy Intensity" and "GHG Intensity" by dividing the gross values by the total floor area for each facility.

Complete data can be found on the Energy Consumption and Greenhouse Gas Emissions Templates for 2019 through 2023 in Appendix A.

COVID-19 did have an impact on facilities, as most were closed to the public for some time or had reduced staffing. However, with staff and public levels steadily increasing in 2022 and 2023, the Municipality was still able to continue to decrease its Energy Consumption and Greenhouse Gas Emissions.

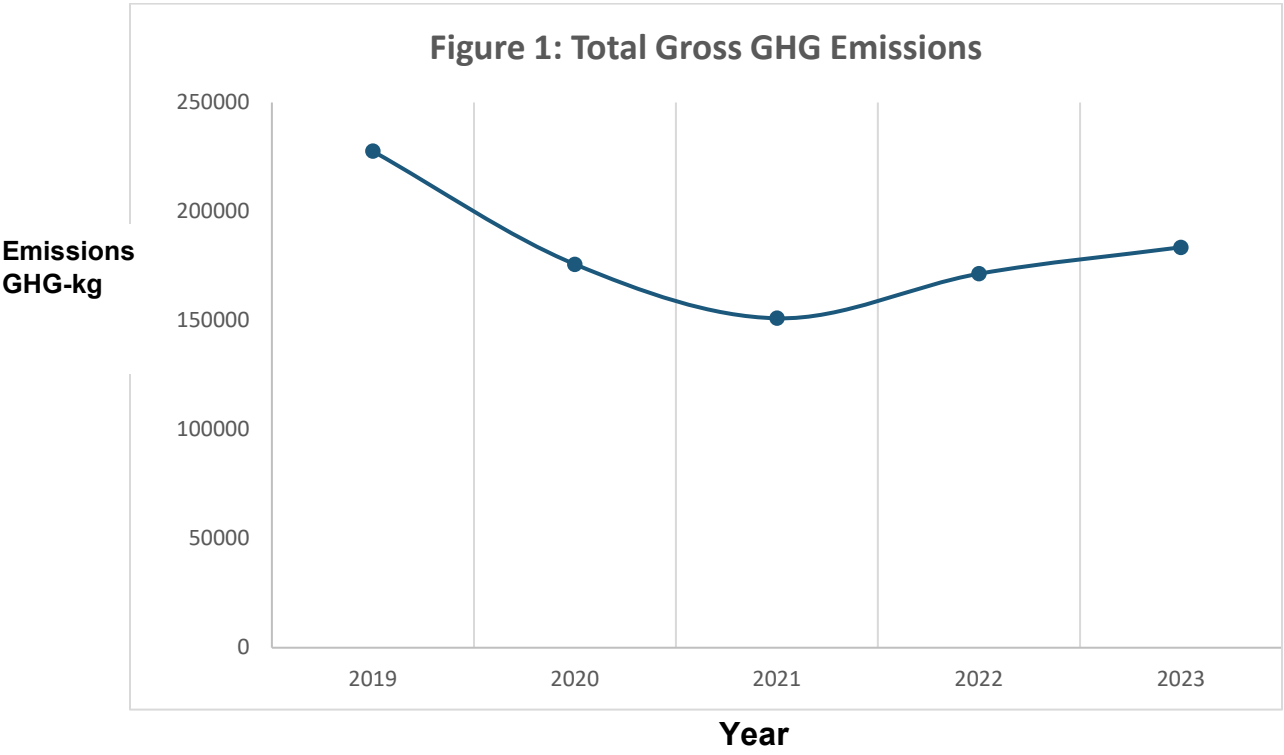
4.1 Total Gross Greenhouse Gas Emissions

The Municipality of Trent Lakes' total gross GHG emissions have steadily decreased at a consistent level between 2011 and 2023, despite a growth in the Municipality's building inventory. With staffing and operational levels returning to pre-pandemic conditions, levels relating to gross GHG emissions returned to previous stable levels.

Table 4 illustrates the total floor area of the Municipality's building inventory from 2019 to 2023. Figure 1 illustrates the total gross GHG emissions per year for all facilities on which the Municipality reports.

Table 4: Facility Total Floor Area

Type of Facility	**Facility**	**Floor Area**
Community Centre	Cavendish Hall/Library	260 m^2
Community Centre	Deer Bay Hall	100 m^2
Community Centre	Galway Hall	502 m^2
Community Centre	Lakehurst Hall	330 m^2
Firehall	Buckhorn Firehall 1	267 m^2
Firehall	Cavendish Firehall 2	301 m^2
Firehall	Galway Firehall 3	502 m^2
Firehall	Nogies Creek Firehall 4	1100 m^2
Library	Buckhorn Library	257 m^2
Municipal Centre	Municipal Office and Council Chambers	454 m^2
Public Works Depot	49 Depot	427 m^2
Public Works Depot	Buckhorn Depot	635 m^2
Public Works Depot	Galway Depot	314 m^2
Total		**5449 m^2**

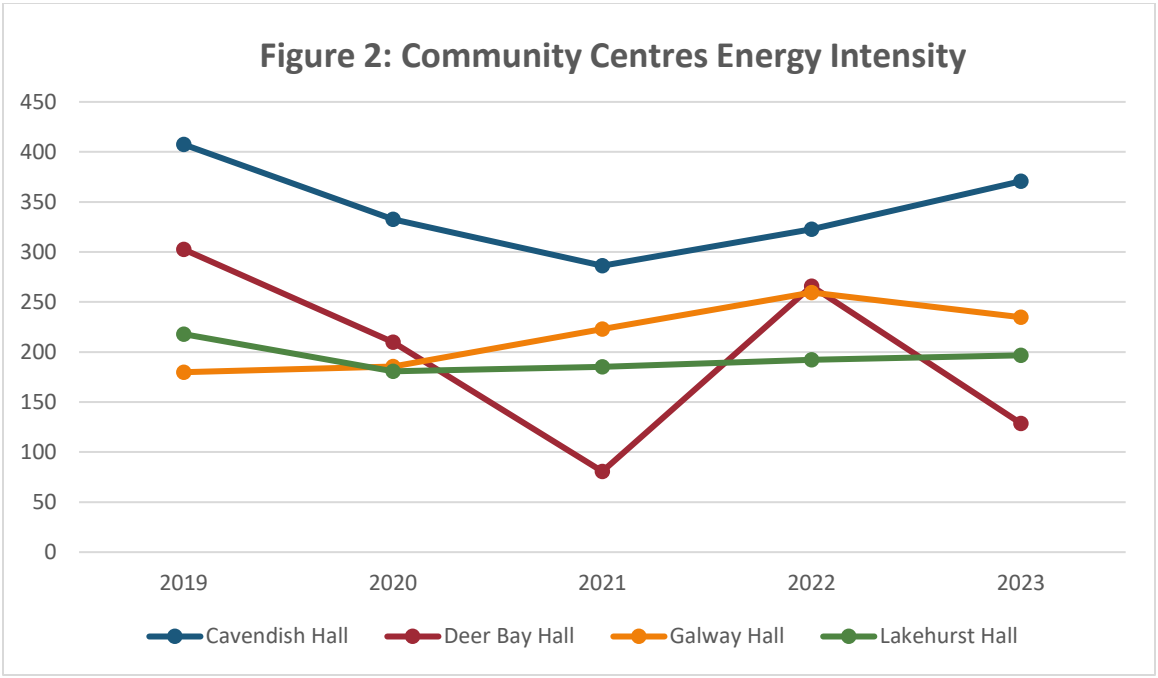


Year	2019	2020	2021	2022	2023
Emissions GHG - kg	227635.01	175817.44	151048.54	171474.57	183609.28

When looking at of the Municipality's gross GHG emissions from 2019 to 2023 there has been a 20% decrease in GHG emissions.

4.2 Community Centres

Figure 2 summarizes the energy intensity for each of the Municipality's Community Centres.



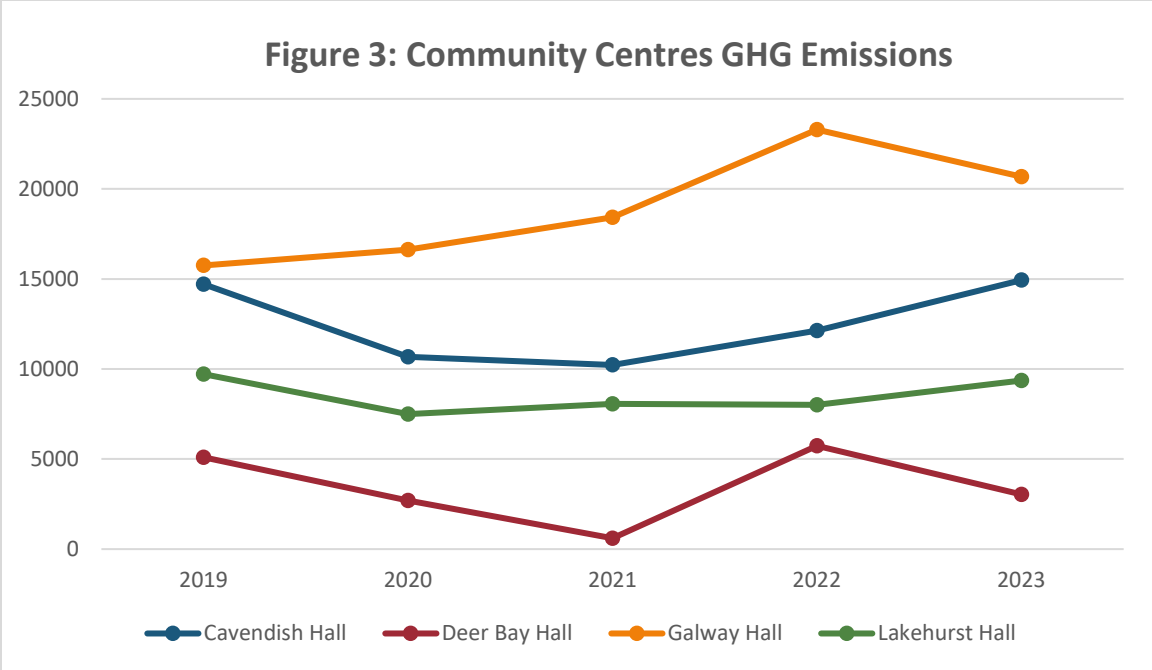
Year	2019	2020	2021	2022	2023
Cavendish Hall & Library Energy Intensity (ekWh/m2)	407.44	322.74	286.25	322.72	370.55
Deer Bay Hall Energy Intensity (ekWh/m2)	302.56	209.70	80.65	265.67	128.56
Galway Hall Energy Intensity (ekWh/m2)	179.85	185.44	222.86	259.47	234.85
Lakehurst Hall Energy Intensity (ekWh/m2)	217.89	180.74	185.14	192.21	196.62
Total:	1107.74	898.62	774.90	1040.07	930.58

Significant work was completed in 2021 in the Galway Hall with new insulation and exterior siding. In the previous 5 years, most Halls have trended downwards in energy intensity. Once centres were able to increase the amount of inside activities offered,

energy costs did also naturally increase. There was positive feedback received from the community with the ability to reopen these centres.

When looking at of the Municipality's Community Centres as a whole there has been a 16% decrease in energy intensity from 2019 to 2023.

Figure 3 presents GHG emissions intensity for the Community Centres.

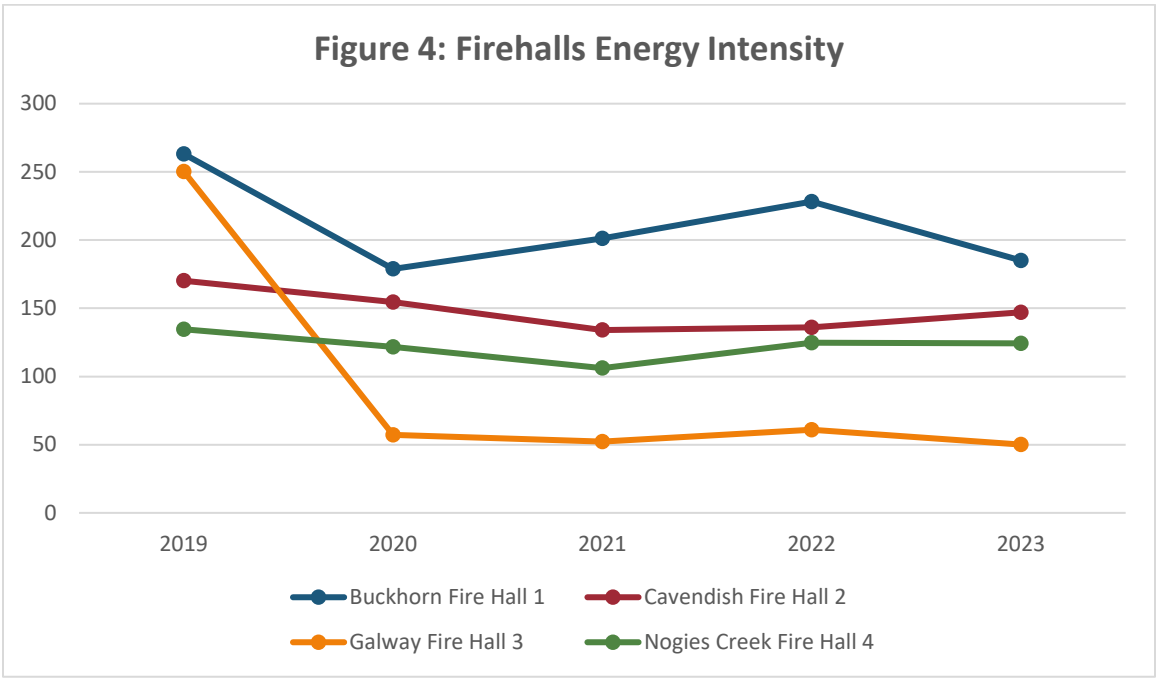


Year	2019	2020	2021	2022	2023
Cavendish Hall & Library Emissions GHG – kg	14715.25	10685.23	10224.26	12137.05	14934.35
Deer Bay Hall Emissions GHG –kg	5097.67	2706.60	603.58	5734.43	3034.72
Galway Hall Emissions GHG - kg	15750.68	16629.83	18418.26	23293.87	20684.05
Lakehurst Hall Emissions GHG - kg	9715.06	7497.29	8072.24	8013.93	9365.33
Total	45278.66	37512.95	37318.34	49179.28	48018.45

When looking at of the Municipality's Community Centres as a whole there has been a 6% decrease in GHG emissions from 2019 to 2023.

4.3 Firehalls

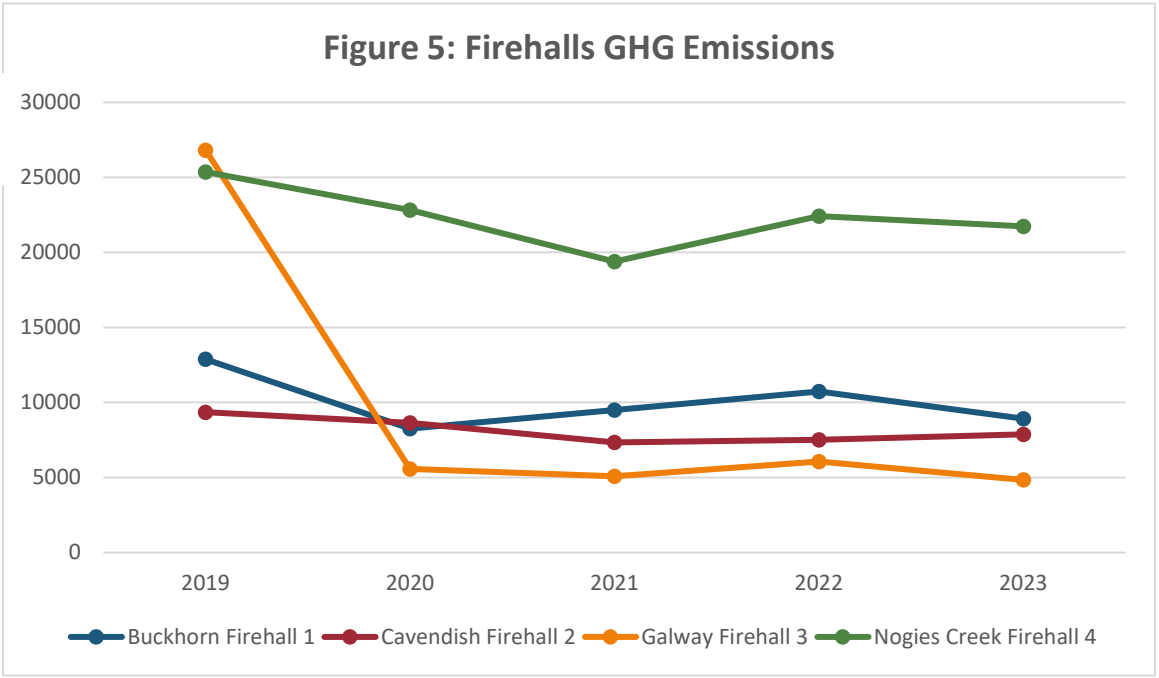
Energy consumption data for the Municipality's firehalls are presented in Figure 4. In 2015, the Municipality built the Nogies Creek Firehall 4. Despite its increase in size (10 times) and utilization (staffed full-time), the Municipality's commitment to energy conservation in the construction of the Nogies Creek Firehall has resulted in a lower energy intensity than the original structure in the past eight years.



Year	2019	2020	2021	2022	2023
Buckhorn Firehall 1 (eKWh/m2)	263.15	178.83	201.15	228.28	185.11
Cavendish Firehall 2 (eKWh/m2)	170.19	154.63	134.03	135.91	147.02
Galway Firehall 3 (eKWh/m2)	250.31	57.16	52.35	61.00	50.08
Nogies Creek Firehall 4 (eKWh/m2)	134.60	121.80	106.11	124.65	124.35
Total	818.25	512.42	493.64	549.84	506.56

Figure 5 details the intensity of GHG emissions for each Firehall. There have been significant reductions in GHG emissions at all Firehalls.

When looking at of the Municipality's Firehalls as a whole there has been a 38.09% decrease in energy intensity from 2019 to 2023.



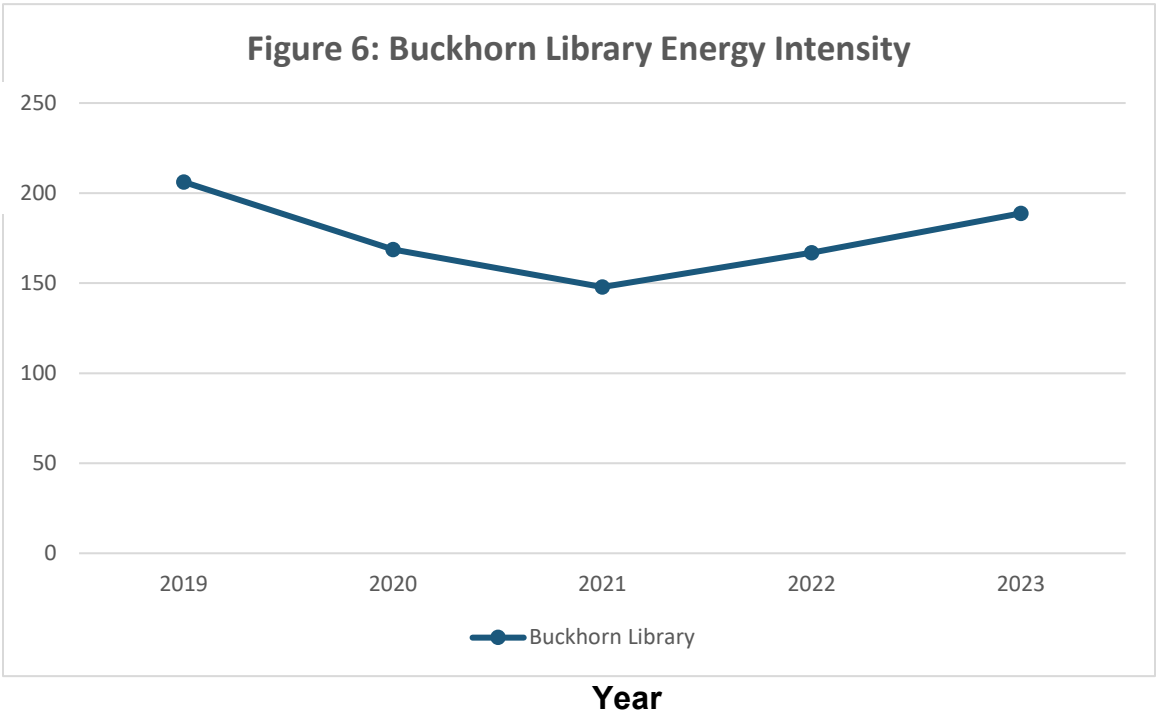
Year	2019	2020	2021	2022	2023
Buckhorn Firehall 1 GHG - kg	12878.36	8256.99	9494.16	10740.27	8925.17
Cavendish Firehall 2 GHG - kg	9354.37	8645.83	7339.15	7518.86	7867.51
Galway Firehall 3 GHG – kg	26818.94	5583.23	5080.43	6063.56	4840.18
Nogies Creek Firehall 4 GHG - kg	25358.78	22833.95	19390.10	22415.05	21732.77
Total	74410.45	45320.00	41303.84	46737.7	42765.69

When looking at of the Municipality's Firehalls as a whole there has been a 42.52% decrease in GHG emissions from 2019 to 2023.

4.4 Library – Buckhorn Branch

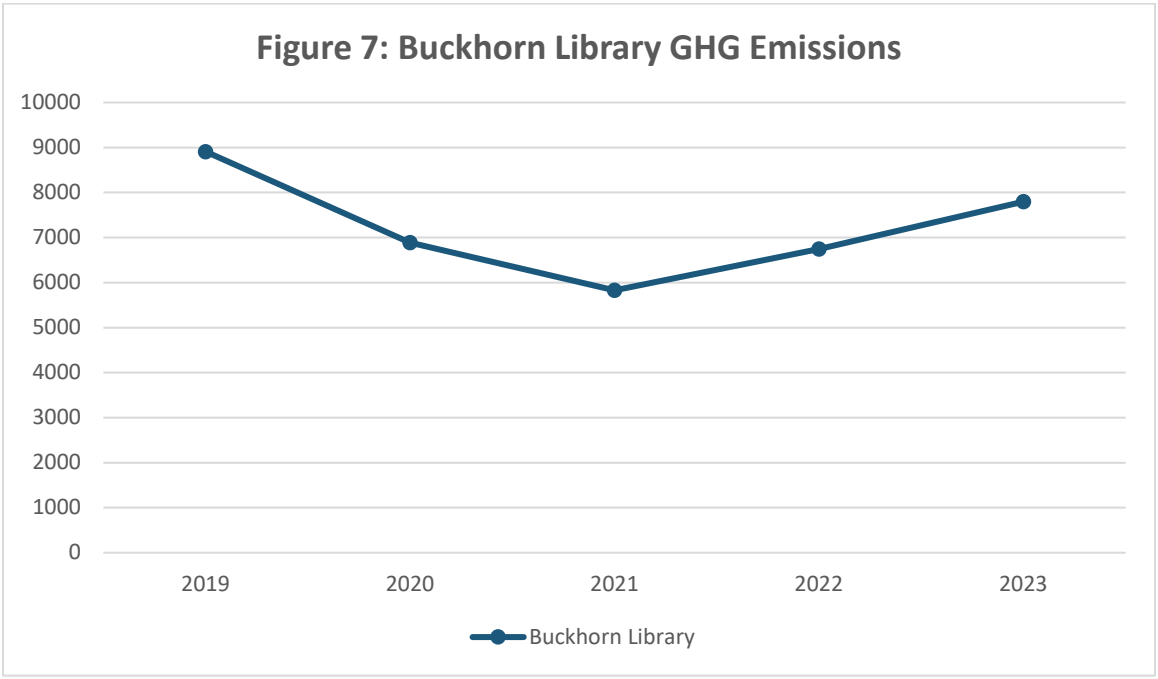
Figures 6 and 7 present energy consumption and GHG emissions data for the Trent Lakes Public Library Main Branch in Buckhorn. The Helen Bowen Branch is housed in the Cavendish Community Centre and its data is included with Cavendish Hall.

The Buckhorn Branch has had reduced energy consumption and GHG emissions since its furnace was replaced with a high-efficiency model in 2014.



Year	2019	2020	2021	2022	2023
Buckhorn Library Energy Intensity (eKWh/m2)	206.18	168.77	147.82	166.93	188.82

When looking at of the Municipality's Library there has been a 8.42% decrease in energy intensity from 2019 to 2023.

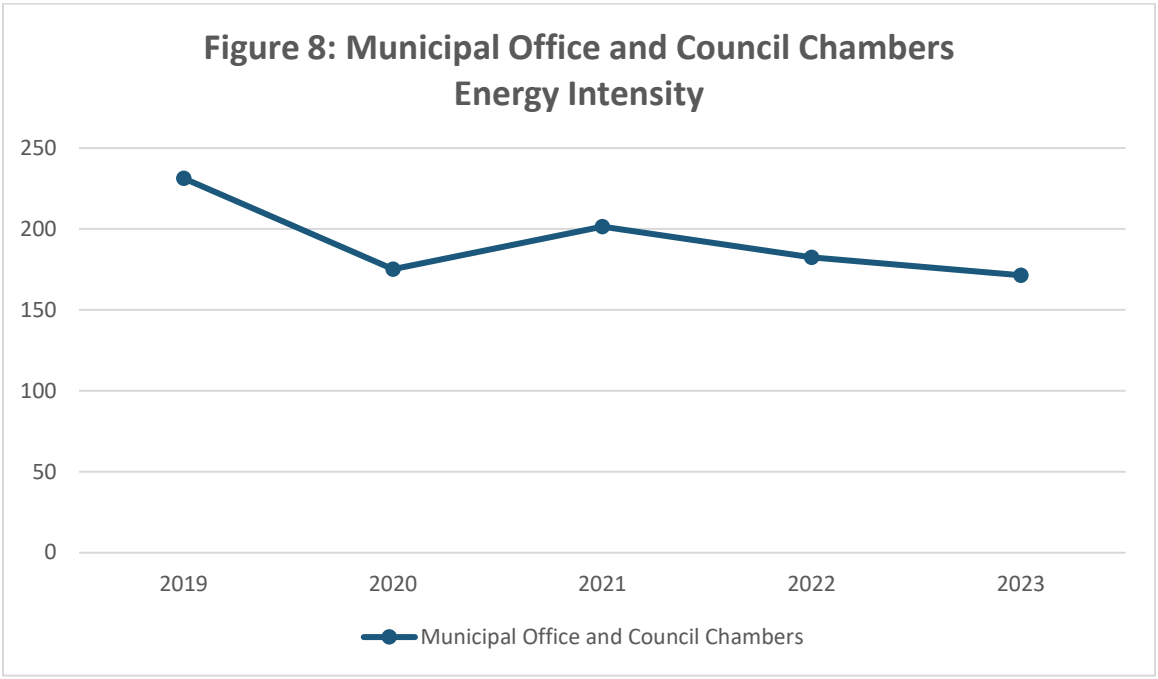


Year	2019	2020	2021	2022	2023
Buckhorn Library Emissions GHG - kg	8909.16	6888.46	5828.14	6742.91	7798.80

When looking at of the Municipality's Library there has been a 12.46% decrease in GHG emissions from 2019 to 2023.

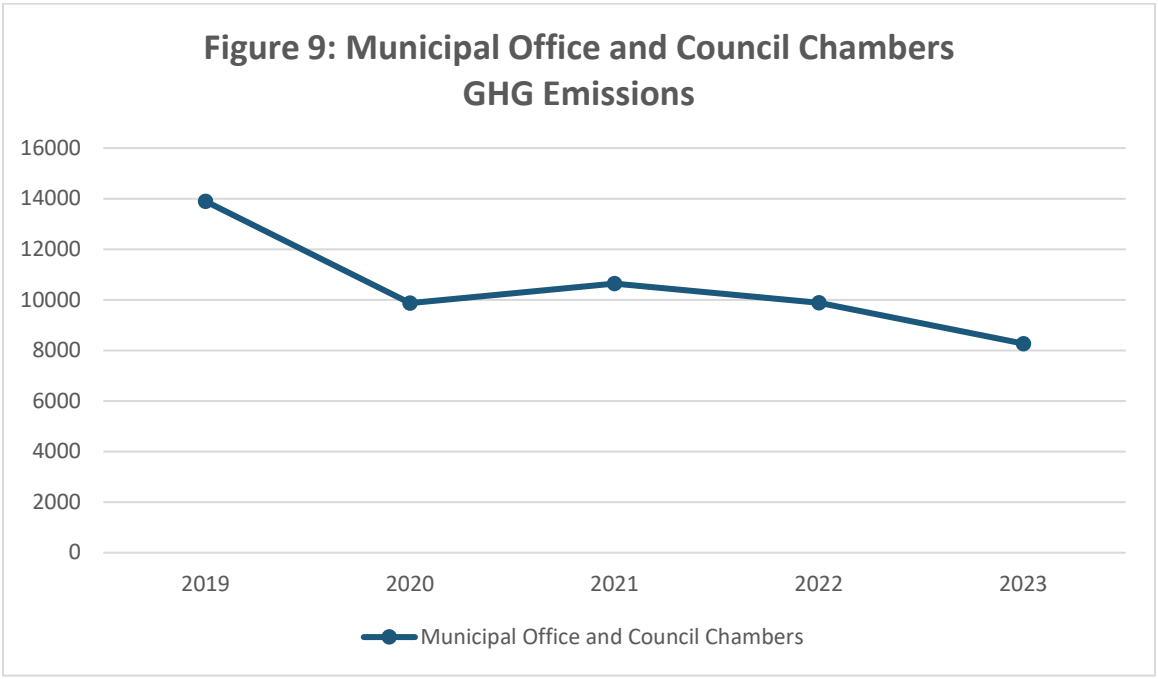
4.5 Municipal Office and Council Chambers

Energy consumption and GHG emissions data for the Municipal Office and Council Chambers are presented in Figures 8 and 9. While the energy consumption levels have fluctuated, the Municipal Office's GHG emissions have steadily declined. In 2023, with the removal of old oil furnaces and their replacement with High-Efficiency propane, as well as a new High-Efficiency A/C unit, energy emissions will further decline in the next 5 years.



Year	2019	2020	2021	2022	2023
Municipal Office Energy Intensity (ekWh/m2)	231.29	175.23	201.41	182.54	171.40

When looking at of the Municipal Office and Council Chambers there has been a 25.89% decrease in energy intensity from 2019 to 2023.



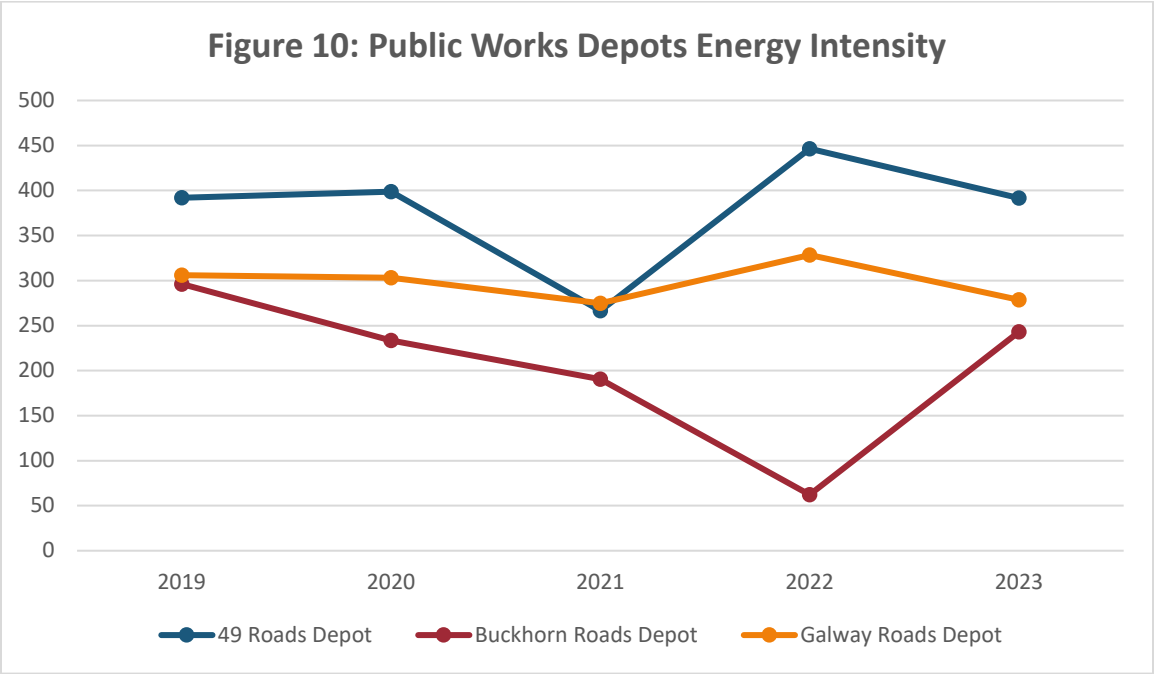
Year	2019	2020	2021	2022	2023
Municipal Office Emissions GHG - kg	13892.98	9864.86	10646.09	9877.60	8267.65

When looking at of the Municipal Office and Council Chambers there has been a 40.49% decrease in GHG emissions from 2019 to 2023.

4.6 Public Works Depots

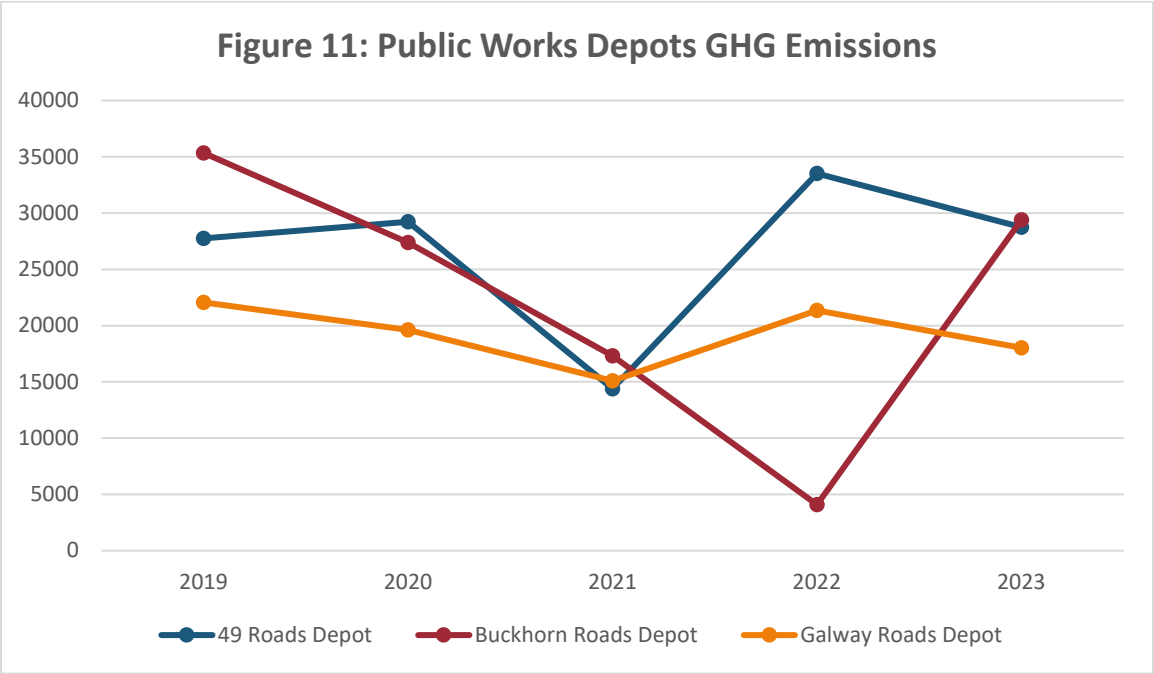
Figures 10 and 11 summarize energy consumption and GHG emissions data for the Municipality's public works depots.

The 2014 Energy Plan identified the Galway Depot as a priority for energy conservation measures. While it remains one of the Municipality's least efficient facilities, its conversion from fuel oil (1) and (2) to propane has resulted in a reduction in GHG emissions over the past nine years. Ongoing maintenance of the furnace at each of the depots has ensured equipment is running as efficiently as possible. In the next 4-7 years, plans are being developed to replace each furnace with HE models.



Year	2019	2020	2021	2022	2023
49 Roads Depot (kWh/m2)	392.04	398.72	266.48	446.46	391.74
Buckhorn Roads Depot (kWh/m2)	296.18	233.66	190.56	62.18	243.08
Galway Roads Depot (kWh/m2)	338.23	303.03	274.80	328.39	278.77
Total	1026.45	935.41	731.84	837.03	913.59

When looking at of the Municipality's Public Works Depots as a whole there has been a 11% decrease in energy intensity from 2019 to 2023.



Year	2019	2020	2021	2022	2023
49 Roads Depot Emissions GHG – kg	27746.09	29228.56	14395.27	33509.87	28751.12
Buckhorn Roads Depot Emissions GHG – kg	35338.78	27366.81	17230.60	4090.02	29394.18
Galway Roads Depot Emissions GHG – kg	22058.89	19629.80	15095.72	21337.15	18013.45
Total	85143.76	76225.17	46811.59	58937.04	76158.75

When looking at of the Municipality's Public Works Depots as a whole there has been a 11.5% decrease in GHG emissions from 2019 to 2023.

5.0 Planned and Proposed Future Actions

5.1 Strategic Facilities Master Plan

As part of the 2019 budget process, Council approved the development of a Strategic Facilities Master Plan to assess the suitability of the Municipality's current buildings and to plan for its long-term needs. The study has been used to guide future investment in Municipal facilities.

Along with factors such as forecasted population trends and building location, space and accessibility needs, the Facilities Plan includes assessments of each facility's condition and lifespan. The plan resulted in the development of a maintenance and capital needs plan for all Municipal facilities. The Facilities Plan also identified opportunities to consolidate existing facilities such as the Dedicated Mechanics Facility that is set to be completed in late 2024 and the joint Firehall and Public Works Depot which is at the beginning stages of the design process.

5.2 Asset Management

In 2017, the Province passed Ontario Regulation 588/17, requiring municipalities to develop and adopt a Strategic Asset Management Plan by July 1, 2019. To clarify the new requirements, staff presented Council with an update to the Municipality's Asset Management Plan (AMP) on June 20, 2017. The update included mitigation approaches to reduce GHG emissions. It also incorporated energy costs as a performance measure relevant to service delivery and asset operation. The inclusion of energy-related factors in the AMP promotes energy conservation as a priority in the Municipal budget and Long-Term Financial Plan. The Asset Management Plan was reviewed and updated in 2022 and 2024 and will continue to be reviewed every five years - see Appendix B.

5.3 Additional Strategies

The following are additional strategies and actions that the Municipality will use to achieve its energy conservation and GHG emissions reduction objectives.

The potential GHG reduction estimates provided in this section include the Municipality's entire facility inventory, including buildings on which the Municipality does not need to currently report.

Other Council directed plans that will support other levels of government and other municipalities can be found in Appendices C through E.

Strategy 1: Institutionalize energy efficiency and low carbon thinking into the organization				
Timeframe	**Underway or Complete**	**Short (1-4 Years)**	**Medium (5-9 Years)**	**Long (10+ Years)**
Continue to implement employee training for energy efficiency	✓	✓	✓	✓
Continue to reinforce staff culture of conservation and behaviour change programs to reduce usage of electricity and heating in day-to-day activities	✓	✓	✓	✓
Continue to implement policy to consider highest energy efficiency as part of procurement requirements and evaluation	✓	✓	✓	✓
Monitor incentive programs and grant opportunities to be leveraged for implementing energy efficiency improvements	✓	✓	✓	✓
GHG Emission Reduction Potential: indirect GHG reductions				

Strategy 2: Enhance operational efficiency of existing buildings				
Timeframe	**Underway or Complete**	**Short (1-4 Years)**	**Medium (5-9 Years)**	**Long (10+ Years)**
Formalize and continue to deliver an equipment preventative maintenance program on an ongoing basis	✓	✓	✓	✓
Conduct regular energy audits of Municipal facilities on a rotational basis to identify opportunities for improved efficiency and produce annual energy report cards		✓	✓	✓
Explore installation of building automation systems to optimize building operations where feasible			✓	✓
Conduct building re-commissioning to optimize building operations where applicable			✓	✓
Continue to implement the utility bill validation process to identify and correct any billing issues and variations in energy usage	✓	✓	✓	✓

Community Improvement Plan 2017 (Appendix D), encourages renovations, repairs, rehabilitation & redevelopment of land or buildings to improve energy efficiency.	✓	✓	✓	✓
GHG Emission Reduction Potential: 7 tonnes CO2e per year				

Strategy 3: Build municipal facilities to ensure high environmental performance				
Timeframe	**Underway or Complete**	**Short (1-4 Years)**	**Medium (5-9 Years)**	**Long (10+ Years)**
Establish Green New Building processes to require new municipal buildings and major renovations be built to high environmental standards	✓	✓	✓	✓
GHG Emission Reduction Potential: 26 tonnes CO2e per year				

Strategy 4: Improve environmental performance of existing municipal facilities				
Timeframe	**Underway or Complete**	**Short (1-4 Years)**	**Medium (5-9 Years)**	**Long (10+ Years)**
Conduct audits/assessments of each facility to identify opportunities to improve energy efficiency	✓			
Implement an interior and exterior LED lighting retrofit program in remaining all facilities where feasible	✓	✓	✓	✓
Replace appliances with Energy STAR rated appliances as needed	✓	✓	✓	✓
Continue to upgrade insulation/building envelopes according to building assessments		✓	✓	✓
Continue to replace windows and doors with high efficiency according to building assessments		✓	✓	✓
Continue to replace mechanical equipment (boilers, chillers, air conditioning units) in remaining	✓	✓	✓	✓

facilities with high efficiency according to building assessments				
Continue to upgrade fans and blowing equipment in remaining facilities according to building assessments	✓	✓	✓	
Set thermostat tempertaures to comply with temperatures needed for various times of day, days of the week and seasons.		✓	✓	✓
Use natural light whenever possible rather than turning on the lights.		✓	✓	✓
Look for phantom power sources around the municipality, unplugging items not in use.		✓	✓	✓
GHG Emission Reduction Potential: 97 tonnes CO2e per year				

Strategy 5: Utilize renewable energy sources				
Timeframe	**Underway or Complete**	**Short (1-4 Years)**	**Medium (5-9 Years)**	**Long (10+ Years)**
Explore renewable energy options when feasible including: • Ground source technology • Solar thermal technology		✓	✓	✓
Explore converting electric hot water heaters to solar		✓		
GHG Emission Reduction Potential: 5 tonnes CO2e per year				

Strategy 6: Offest Energy Use				
Timeframe	**Underway or Complete**	**Short (1-4 Years)**	**Medium (5-9 Years)**	**Long (10+ Years)**
Plant new trees & shrubs in the Municipality's parks: • Dettman's Park • Ode'Naang Park • Shearer Park • Cavendish Playground		✓	✓	✓
GHG Emission Potentially Removed from Air: 640 tonnes CO2e per year				

The Municipality recognizes that producing 0 tonnes CO2e is untainable. Strategy 6 shows how the Municipality plans to help to offset the amount of CO2e that will be produced each year.

Strategy 6 and the Municipality's Open Space Plan (see Appendix C), will work in conjunction to offset CO2e emissions that the Municipality produces. The development of parks, trails and beaches allows plants to flourish within the community while absorbing CO2e emissions from the air.

5.4 Outcomes

The outcomes of the above actions will reduce the Municipality's carbon footprint and overall GHG emissions. Beyond that, the actions will cause a reduction in the Municipality's energy costs, and the savings can then be put into reserves to help further the Municipality's future energy conservation projects.

There are several ways to measure the Municipality's energy consumption and conservation. As the Municipality continues to report on their energy consumption, they will be able to see a reduction in energy use and consumption when using the Energy Planning Tool to compare 2024-2029 energy consumption to previous years. The Municipality aims to reduce its overall GHG emissions by at least 5% over the next 5 years.

6.0 Conclusion

The Municipality is committed to energy conservation and reducing GHG emissions as a key component of its operations. This commitment has allowed the Municipality to hold its total gross GHG emissions at a consistent level, despite a growth in the Municipality's building inventory. However, many opportunities for further energy conservation remain. Through proactive monitoring of energy consumption and forward-thinking facility renovations and building service equipment upgrades, the Municipality is striving to manage its energy usage in a responsible way. With the creation of a Council led Environmental Advisory Committee (EAC), more opportunities will open for collaboration with the public to increase the Municipality's buildings energy efficiency.

Appendix A:
Energy Consumption and Greenhouse Gas Emissions for 2019 to 2023

The following tables do not include Natural Gas (ekWh) or Other (ekWh) as neither of those types of energy are currently used at any Muni cipal buildings in Trent Lakes.

Appendix B:
Strategic Asset Management Plan

Please find this plan on our website: Asset Management Plan (trentlakes.ca)

Appendix C: Open Spaces Master Plan

Please find this plan on our website: 2023-04-11-Trent-Lakes-Open-Spaces-Master-Plan.pdf (trentlakes.ca)

Appendix D: Community Improvement Plan

Please find this plan on our website: Community Improvment Plan for the Hamlet of Buckhorn (trentlakes.ca)

Appendix E: Economic Development, Tourism and Recovery Strategic Plan

Please find this plan on our website: Municipality of Trent Lakes Economic Development, Tourism & Recovery Strategic Plan

Appendix F: Corporate Facility Energy Consumption & Emissions Report

Please find this plan on our website: Corporate Facility Energy Consumption & Emissions Report