



Town of LaSalle

# Conservation and Energy Management Plan

Updated June 10, 2019



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# EXECUTIVE SUMMARY

The Town of LaSalle's approach to energy management is four dimensional. It begins with:

- 1) The understanding and increased awareness of the energy we currently use and how that energy is used (staff behaviors that influence energy consumption)
- 2) Reducing and elimination of energy waste
- 3) Maximizing efficiencies
- 4) Optimizing energy supply

All actions should fall under one of three headings:

- Process (energy plan, energy procurement, hedging, budgeting)
- Programs (energy audits, energy awareness, LAS benchmarking)
- Projects (Vollmer lighting, LED streetlights, VFD installation, etc.)

The energy management plan incorporates the following areas of focus:

- 1) Energy Data Management – Evaluate all elements within an organization with regard to energy usage data. This includes evaluating monthly bills, establishing key performance indicators, load profiles, interval data, benchmarking and sub metering.
- 2) Energy Supply Management – Investigate exposure to the energy market and suppliers; monitor changes and account management with utility companies; look at choices regarding the supplier, green energy alternatives, reliability and risk management.
- 3) Energy Use in Facilities – Evaluate facilities through diagnostic/comprehensive audits, operating procedures, monitoring efficiency of equipment and systems
- 4) Equipment Efficiency – Reduce the consumption of energy without sacrificing the services provided. This includes preventative maintenance and the investigation of new systems and technologies
- 5) Organizational Integration – Include staff throughout the organization in the planning and implementation of the energy management plan. This involves spreading awareness regarding roles in various elements of the plan.

Selection process for energy actions:

- 1) Evaluation of energy baseline data and key point indicators
- 2) Alignment with vision, goals and objectives
- 3) Pursuit of SMART principles (Specific, Measureable, Accountable, Realistic, Time Bound).
- 4) Analysis of payback period for costly initiatives

## INTRODUCTION

Consistent with the Town of LaSalle's Corporate Mission "The Town of LaSalle is committed to providing its residents, businesses and visitors with high quality programs and services in a proactive, open, environmentally and fiscally responsible manner", the Town has completed this Energy Management Plan. An Energy Management Plan was first completed by the Town in 2014, this updated Energy Management Plan has been completed in compliance with Ontario Regulation 507/18.

From both an environmental and a financial perspective it is mandatory that an energy management plan be put into place and energy savings initiatives be implemented. From an environmental perspective, implementing the goals and objectives established by the energy management plan will help reduce greenhouse gas emissions and maintain the Town's healthy and vibrant community. From a financial perspective, given past and forecasted trends, the cost of energy has increased over the past 5 years and is forecasted to continue to increase in the future. In 2018, the total cost of the Town's hydro and natural gas usage was \$1,360,000, an increase of \$260,000 or 23.6% over 2012 costs. While rates are not controllable, a portion of usage is controllable, which can mitigate the future increase in energy costs.

In addition to capital purchases of energy efficient products, it is important that energy awareness form be a component of the corporate culture of the Town of LaSalle from an operational perspective.

This energy management plan covers the Town of LaSalle's Town Hall / Council Chambers, Public Works building, Police Services building, Fire Services building, Vollmer Recreation Center, and pump stations. In addition to these

mandatory items, this energy management plan will also include a streetlight analysis, as this is one of the highest energy usages in the Town of LaSalle.

This plan will also include the following mandatory information:

- Information on the Town’s annual energy consumption during the last year for which complete information is available for a full year,
- The Town’s goals and objectives for conserving and otherwise reducing energy consumption and managing its demand for energy,
- The Town’s proposed measures under its energy conservation and demand management plan,
- Cost and saving estimates for any proposed measures,
- A description of any renewable energy generation facility operated by the Town and the amount of energy produced on an annual basis by the facility,
  
- A description of,
  - The ground source energy harnessed, if any, by ground source heat pump technology operated by the Town,
  - The solar energy harnessed, if any, by thermal air technology or thermal water technology operated by the Town, and
  - The proposed plan, if any, to operate heat pump technology, thermal air technology or thermal water technology in the future,
- The estimated length of time the public agency’s energy conservation and demand management measures will be in place, and
- Confirmation that the energy conservation and demand management plan has been approved by the Town’s senior management.

### **Declaration of Commitment**

See Appendix B for a copy of the council resolution declaring Council’s support for the Energy Management Plan.

### **Vision**

The vision of the Town of LaSalle’s Energy Management Plan is to reduce total energy consumption and greenhouse gas emissions through the efficient use of energy and resources, while maintaining a consistent level of service to the general public.

All Town employees will have a key role in accomplishing this vision. Through education and conservation awareness, Town staff will have a significant impact

on the amount of energy consumption. In addition to staff awareness, various capital initiatives which have been identified in past energy audits or will be identified in future energy audits will also reduce the energy consumption rates as they are implemented.

## GOALS

The Town of LaSalle's Energy Management Plan was developed to achieve the following goals:

- 1) To reduce the financial burden of increasing energy costs
- 2) To create a financial plan to fund various energy savings initiatives
- 3) To reduce the environmental impact of the Town's operations
- 4) To improve the reliability of Town equipment and reduce maintenance
- 5) To create a corporate culture of energy awareness

The main goal of this plan is to reduce the Town of LaSalle's energy consumption. By implementing all of the goals mentioned above, this will ultimately lead to less energy consumption by the Town of LaSalle. Over the past seven years The Town of LaSalle completed several new facilities including a new Town Hall, Fire Station, Police Station, and Public Works Facility. As these facilities are relatively new, the main focus over the next five years will continue to be on the Vollmer recreation centre, which is the largest consumer of energy in the Town.

Various measurements of success will be discussed in detail throughout the plan to ensure that these goals are accomplished.

## ENERGY REDUCTION RESULTS

The Town of LaSalle is in a unique situation as the oldest facility in the Town (excluding pump stations) is the Vollmer Culture and Recreation Centre. The Vollmer Recreation Center was completed in 2008 and is eleven years old. The other Town buildings were either completed in 2013 (Fire Station, Police Station, Public Works Building), or completed in 2014 (Town Hall and Council Chambers). As such the energy reductions targeted within the 2014 Energy Management focused on the Vollmer Recreation Centre and Town pump stations. This being said, for this 5 year plan, the energy reduction targets that result from new capital purchases will continue to primarily focus on the Vollmer Recreation Centre. The energy reduction targets that result from

corporate staff awareness will relate to all Civic facilities including the Vollmer Recreation Centre (smaller reduction targets).

It is important to note that many factors affect energy consumption throughout the year. These variable factors include weather conditions for all buildings that require heat and air conditioning each year, activity rates, number of events and flow rates for pump stations each year.

The following chart outlines energy targets established within 2014 Energy Management Plan and the results based on 2017 data for the various buildings and pump stations throughout the municipality:

Building	Target	Comparison Year	GHG Emissions Annual Inc/(Dec)
Vollmer Recreation Centre	5% decrease over 5 years or 1%/ year	2012	-2.02%
Police Station	1% decrease over 4 years or 0.25%/year	2014	-2.90%
Fire Station	1% decrease over 4 years or 0.25%/year	2015	1.81%
Public Works Building	1% decrease over 4 years or 0.25%/year	2014	-7.60%
New Town Hall	No goal as building not yet complete	2015	-4.37%
Pump Stations	1% decrease over 5 years or 0.2%/year	2012	2.64%

Energy consumption has decreased within the Vollmer Recreation Complex, Police Station, Public Works and Town Hall facilities. While slight increases have been recorded within the Fire Station and Pump Stations it is important to note the Fire Service has seen increasing activity and the annual flow through pumping stations has increased over 5%, while GHG emissions have increased only 2.64%

In addition, a comparison of the energy consumption, emissions and financial cost of the Town of LaSalle street-lighting in 2013 and 2018 (post LED

conversion) is outlined below. The data illustrates a large decrease in usage, financial cost as well as a significant reduction in emissions.

Energy Source	Total Usage (kwh)		Total Cost (Year)		Total GHG emissions	
	2018	2013	2018	2013	2018	2013
Streetlight-Hydro	850,698	2,779,446	\$187,668	\$389,937	68,055	222,356

## ENERGY REDUCTION TARGETS

The following chart outlines energy targets for the various buildings and pump stations throughout the municipality.

Building	Target	Comparison Year
Vollmer Recreation Centre	5% decrease over 5 years or 1%/ year	2017
Police Station	1% decrease over 5 years or 0.20%/year	2017
Fire Station	1% decrease over 5 years or 0.20%/year	2017
Public Works Building	1% decrease over 5 years or 0.20%/year	2017
New Town Hall	1% decrease over 5 years or 0.20%/yea	2017
Pump Stations	1% decrease over 5 years or 0.20%/year	2017

# PROJECTS

A number of projects have been completed or are currently in progress in order to reduce energy consumption within the Town. In particular, streetlights have been converted to LED and the Vollmer rink lighting have also been converted to LED. Likewise, a LED lighting conversion has taken place within the Vollmer natatorium. Also, the lighting at all pumping stations has been updated to LED. Furthermore, pumping station motors within station #1 have been updated with more energy efficient models.

Additionally, a master lighting controls project is underway within the Vollmer Recreation Centre. Other potential updates include replacing motors on screw pumps within station one. Other future capital investments and projects will be dependent upon the results of energy audits conducted on Town facilities.

# OBJECTIVES

In order to continue to strive to meet the performance targets outlined within the plan and accomplish the goals set forth, there are several objectives that will be targeted for completion.

The following are the strategic objectives:

- 1) Continue with a financial plan to fund the various energy savings initiatives
- 2) Have an energy audit performed at all Town buildings and pump stations on a rotational basis.
- 3) Each year, investigate the cost-benefit of one or more energy savings initiatives identified in future energy audits and implement those projects which have a positive energy management impact.
- 4) Create an energy awareness program for Town staff
- 5) Create a pamphlet annually that explains energy savings initiatives implemented by the Town to educate the public.

# SUMMARY OF CURRENT ENERGY CONSUMPTION, COST AND GHGS

Ontario Regulation 507/18 requires that energy consumption be documented on the following Town facilities:

1. Administrative Offices and related facilities, including municipal council chambers
2. Public Libraries
3. Cultural Facilities, indoor recreation facilities and community centres, including art galleries, performing art facilities, auditoriums, indoor sports arenas, indoor ice rinks, indoor swimming pools, gyms and indoor courts for playing tennis, basketball or other sports
4. Ambulance stations and associated offices and facilities
5. Fire stations and associated offices or facilities
6. Police stations and associated offices and facilities
7. Storage facilities where equipment or vehicles are maintained, repaired or stored
8. Buildings or facilities related to the treatment or pumping of water or sewage
9. Parking garages

The following chart summarizes the 2017 energy cost and consumption data for Town facilities required to be included in the Town's energy consumption reporting:

<b>Energy Source</b>	<b>Total Usage</b>	<b>Unit of Measurement</b>	<b>Total Cost per year</b>	<b>Total GHG emissions (Kg)</b>
Hydro	7,085,122	kWh	\$1,053,026	566,810
Natural Gas	414,832	m <sup>3</sup>	\$121,150	784,032
<b>Total</b>			<b>\$1,174,175</b>	<b>1,350,842</b>

See appendix A for a detailed breakdown by Town facility.

In addition to Town facilities, the total streetlight energy consumption for 2018 is detailed in the following chart:

<b>Energy Source</b>	<b>Total Usage</b>	<b>Unit of Measurement</b>	<b>Total Cost per year</b>	<b>Total GHG emissions (Kg)</b>
Streetlight-Hydro	850,698	kWh	\$187,668	68,055

## RENEWABLE ENERGY

### Renewable Energy Currently Utilized:

Currently there are 1,782 solar panels installed on the roof of the Vollmer Recreation Centre. The solar panels have a DC Power Capacity of 403 kW and an AC Power Capacity of 250 kW.

The following table summarizes the financial investment

Green Shares Purchased	\$300,196.00
Annual Dividend Yield	\$21,013.72
Annual Lease Revenue (Yr. 1 to 10)	\$7,052.50
Annual Lease Revenue (Yr. 11 to 20)	\$10,075.00

### Renewable Energy Planned:

Currently there are no additional renewable energy projects planned in the near future. The Town will continue to review investment opportunities that will result in an attractive return on investment.

# ENERGY LEADER

The Town of LaSalle will clearly designate overall leadership and responsibility for corporate energy management. There are 2 leaders who have jointly created the energy management plan, these leaders are Mark Masanovich, Manager of Facilities and Tano Ferraro, Manager of Finance / Deputy Treasurer. The responsibilities of these energy management leaders are outlined below:

<p>Mark Masanovich</p>	<ul style="list-style-type: none"> <li>• Responsible for the actual installation and implementation of capital related energy savings initiatives</li> <li>• Monitor energy Usage on an annual basis</li> <li>• Review energy audits from an operational perspective</li> <li>• Co-champion of the creation of the annual energy savings initiatives pamphlet for the public</li> <li>• Co-champion of the creation of a staff awareness program to roll out over the next 5 years</li> <li>• Co-champion of the creation of the energy management plan every five years</li> </ul>
<p>Tano Ferraro</p>	<ul style="list-style-type: none"> <li>• Create a financial plan to fund the various energy savings initiatives</li> <li>• Report annually on the Town of LaSalle's energy usage per Reg. 507/18</li> <li>• Monitor energy Usage on an annual basis</li> <li>• Review energy audits from a financial perspective and recommend the prioritization projects</li> <li>• Co-champion of the creation of the annual energy savings initiatives pamphlet for the public</li> <li>• Co-champion of the creation of a staff awareness program to roll out over the next 5 years</li> <li>• Co-champion of the creation of the energy management plan every five years</li> </ul>

# PROJECT EXECUTION

## Project Execution at the Municipal Level:

The administration and implementation of this plan will be the responsibility of the Manager of Facilities and the Deputy Treasurer / Manager of Finance. Since all Town staff use energy in our daily activities, it will be the responsibility of all staff to be aware of energy use and work towards a culture of conservation. Through staff awareness/training newsletters and energy use statistical updates, staff will be able to contribute to the energy savings initiatives and see the results of their efforts.

## Project Execution at the Asset Level:

From an asset level perspective, the first step in identifying areas of potential energy savings is to have an energy audit performed on Town facilities. Energy audits involve a walkthrough of each facility and identify various initiatives that can be implemented in order to save energy and correspondingly reduce costs. Each initiative identified in an audit provides a cost to implement the initiative, resulting savings in energy / cost and provides an estimated payback period to cover cost of implementation. Each initiative also identifies any potential savings from grants that are available at the time of the audit.

Over the course of this five year plan, an internal or external energy audit will be performed on Town facilities. Initiatives identified in the energy audits will be ranked by payback period. Initiative with the fastest payback period will be top priority and implemented first.

# ENERGY PLAN REVIEW

Regulation 507/18 states that on or before July 1, 2019 and on or before every fifth anniversary thereafter, every public agency shall publish on its website and intranet site, if it has either or both, and make available to the public in printed form at its head office all of the information that is required to be published and made available under subsection (1), the Energy Consumption and Greenhouse Gas Emission Template that is required to be submitted and published on or before July 1 of that year and the following information:

- 1) A description of current and proposed measures for conserving and otherwise reducing energy consumption and managing demand for energy.
- 2) A revised forecast of the expected results of the current and proposed measures.
- 3) A report of the actual results achieved.
- 4) A description of any proposed changes to be made to assist the public agency in reaching any targets it has established or forecasts it has made.

Although this information is required every five years, the Town will review the energy management plan on an annual basis. It is important that actual energy usage is monitored and tracked on a regular basis to ensure that energy reduction targets will be met. The energy management team will also present any updates to the plan and results year over year to the environmental committee of the Town of LaSalle.

In addition to monitoring results annually, specific measures will be taken for capital initiatives. For every capital initiative that relates to energy reduction, the Town will measure the energy usage prior to and after the installation of any new capital to ensure that energy savings is occurring as the result of the capital initiative and the projected payback period from dollars saved is reasonable.

# ENERGY CONSUMPTION

Refer to Appendix A for 2017 Energy consumption of facilities required to be included in the energy management plan under Reg. 507/18.

## FINANCIAL PLAN

Administration will bring forward opportunities to conduct internal energy audits and/or externally conducted energy audits which will be completed subject to available funding. Those potential projects identified within the internally or externally conducted energy audits will be evaluated and brought forward for capital planning purposes. The operating cost savings realized through the introduction of energy efficient capital investments will reduce the operating costs of the Town of LaSalle.

In order to accurately determine the dollar value of energy savings each year, it is important that the energy usage for each initiative is measured prior to any capital project implementation and after the implementation.

# Appendix A

Operation Name	Total Floor Area	Unit	Avg hrs/wk	Annual Flow (Mega Litres)	Energy Type / Amount Consumed in Natural Units				Total (calculated in webform)		
					Electricity		Natural Gas		GHG Emissions (Kg)	Energy Intensity (ekWh/sqft)	Energy Intensity (ekWh/Mega Litre)
					Quantity	Unit	Quantity	Unit			
New Public Works	35,000.00	Sq. Ft.	40		312,429	kWh	33,526		88,358	19	
New Fire Services	24,000.00	Sq. Ft.	168		195,139	kWh	27,642	Cubic Meter	67,855	20	
Front Road Park Washrooms	225.00	Sq. Ft.	40		1,399	kWh			112	6	
Outdoor Pool	5,500.00	Sq. Ft.	40		57,288	kWh	24,965	Cubic Meter	51,767	59	
New Police Services	22,000.00	Sq. Ft.	168		405,296		36,788	Cubic Meter	101,953	36	
Pump Station 4	500.00	Sq. Ft.	168	66.29400	12,319	kWh			986		186
Pump Station 1	2,000.00	Sq. Ft.	168	3281.84800	391,995	kWh			31,360		119
Pump Station 11		Sq. Ft.	168	115.21200	6,617	kWh			529		57
Pump Station 13		Sq. Ft.	168	86.76600	4,487	kWh			359		52
Pump Station 14		Sq. Ft.	168	225.91600	10,171	kWh			814		45

Operation Name	Total Floor Area	Unit	Avg hrs/wk	Annual Flow (Mega Litres)	Energy Type / Amount Consumed in Natural Units				Total (calculated in webform)		
					Electricity		Natural Gas		GHG Emissions (Kg)	Energy Intensity (ekWh/sqft)	Energy Intensity (ekWh/Mega Litre)
					Quantity	Unit	Quantity	Unit			
Pump Station 16		Sq. Ft.	168	134.01800	8,435	kWh			675		63
Pump Station 19	500.00	Sq. Ft.	168	38.10400	16,060	kWh			1,285		421
Pump Station 2	500.00	Sq. Ft.	168	1447.24500	29,175	kWh			2,334		20
Pump Station 3		Sq. Ft.	168	144.09600	5,600	kWh			448		39
Pump Station 6		Sq. Ft.	168	101.17700	4,459	kWh			357		44
Pump Station 7	600.00	Sq. Ft.	168	1573.04200	43,176	kWh			3,454		27
Pump Station 8		Sq. Ft.	168	61.38500	3,643	kWh			291		59
Pump Station 10	500.00	Sq. Ft.	168	246.31600	34,140	kWh			2,731		139
Pump Station 17		Sq. Ft.	168	15.40100	1,377	kWh			110		89
Pump Station 12		Sq. Ft.	168	62.70900	3,588	kWh			287		57
Pump Station 15		Sq. Ft.	168	67.72000	3,425	kWh			274		51
Pump Station-		Sq. Ft.	168	858.12600	16,535	kwh			1,323		19

Operation Name	Total Floor Area	Unit	Avg hrs/wk	Annual Flow (Mega Litres)	Energy Type / Amount Consumed in Natural Units				Total (calculated in webform)		
					Electricity		Natural Gas		GHG Emissions (Kg)	Energy Intensity (ekWh/sqft)	Energy Intensity (ekWh/Mega Litre)
					Quantity	Unit	Quantity	Unit			
Laurier Storm											
New Town Hall	40,000.00	Sq. Ft.	40		1,008,789	kWh	80,894	Cubic Meter	233,593	47	
Vollmer Centre	115,000	Sq. Ft.	126		4,250,166	kWh	211,009	Cubic Meter	738,820	56	
Vollmer Concession Building	400.00	Sq. Ft.	40		238,843	kWh	8	Cubic Meter	19,123	597	
Pump Station-Disputed Storm		Sq. Ft.	168	62.07100	4,511	kWh			361		73
Pump Station 18		Sq. Ft.	168	41.16400	16,060	kWh			1,285		390

# APPENDIX B

At the June 25, 2019 Regular Council Meeting, the following resolution passed:

“That the report of the Manager of Finance/Deputy Treasurer and Manager of Facilities dated June 25, 2019 (FIN-12-2019) regarding the Town of LaSalle's 2019 Energy Conservation & Management Plan BE RECEIVED; and that the Town of LaSalle's 2019 Energy Conservation & Management Plan BE APPROVED.  
Carried.”