



# Township of Ashfield-Colborne-Wawanosh

## Energy Conservation and Demand Management (CDM) Plan Update 2019

### Overview

[Ontario Regulation 507/18](#) (Broader Public Sector: Energy Reporting and Conservation and Demand Management Plans) requires broader public sector (BPS) organizations, such as municipalities, to develop a CDM plan and update it every five years. The Township of Ashfield-Colborne-Wawanosh's updated CDM plan was developed in compliance with the regulation and covers the period from July 1, 2019 to June 30, 2024. This plan describes:

- New energy conservation goals and objectives;
- Current and proposed energy conservation measures;
- Results from the first CDM plan; and
- Changes made from the previous plan to help achieve the new goals and objectives.

The 2019 CDM Plan is not a new plan, it is intended to build on the foundations of the 2014 CDM Plan and present revised energy use forecasts based on ongoing energy conservation measures. This updated CDM plan builds on the Township's first [plan](#) developed in 2014 and the experience gained in energy conservation over the last five years.

In addition to energy conservation, the updated CDM plan supports the Township's [strategic plan](#), [asset management plan](#), and [official plan](#).

### Vision and Purpose

The Township of Ashfield-Colborne-Wawanosh will strive to continually reduce its total energy consumption and associated greenhouse gases through wise and efficient use of energy and resources. This vision will be achieved through the integration of energy efficient facility infrastructure, operational efficiencies, and building the foundation for a culture of energy awareness and knowledge within the Township. Commitment from Council and staff is crucial, as everyone has a role in energy conservation and to showcase appropriate leadership within corporate facilities and operations.

### Goals and Objectives

- To improve energy efficiency within Township facilities.
- To reduce the environmental impact and energy consumption in day-to-day operations.
- To reduce operating costs and maximize fiscal resources through direct and indirect energy savings.
- To improve the reliability of equipment and reduce maintenance activities and costs.
- To improve the management of the Township's energy consumption.
- To reduce greenhouse gas emissions and ensure the wise use of resources.
- To increase conservation knowledge and awareness among staff and within the community by creating a culture of conservation and sustainability.

## Reduction Target

The Township aims to reduce its overall energy consumption (from all facilities and streetlights) by an average of 1.5% per year between 2019 and 2024.

## Tracking Energy Consumption and Savings

Annual energy reporting is required under O. Reg 507/18 and allows the Township to understand how energy is used in its buildings, identify potential energy conservation opportunities, and track progress on energy conservation efforts. The 2017 annual energy report, as required under the regulation, can be found on the Township's website along with previous years' reports and the 2014 CDM Plan. The Township's energy consumption benchmark, based on 2016 electricity, propane, fuel oil, and total greenhouse gas emission data, can be found in Appendix A. The Township has 15 facilities that are identified as reportable under the Regulation. These include administration and recreation facilities, public works garages, water facilities, as well as community centres, medical and fire facilities.

Total greenhouse gas emissions (kg of CO<sub>2</sub>) from Township buildings reported were reduced by 13% between 2014 and 2017 (Table 3 / Figure 1). Table 1 and 2 present a summary of the energy use and consumption for each facility reported in the Township.

Table 1

ELECTRICITY CONSUMPTION (KWH)						
	2013	2014	2015	2016	2017	% Change 2013-2017
ASHFIELD ROAD SHED	33,822	32,580	30,781	29,901	26,632	-21%
AUBURN LIBRARY	2,832	3,603	1,267	1	1,230	-57%
BENMILLER COMMUNITY HALL	6,314	8,270	6,099	7,963	6,007	-5%
COLBORNE ROAD SHED	27,046	26,598	23,718	20,293	21,629	-20%
LUCKNOW FIRE DEPARTMENT	31,486	30,680	30,765	35,794	37,711	20%
LUCKNOW MEDICAL CENTRE	43,920	46,239	43,280	38,960	42,884	-2%
LUCKNOW SPORTS COMPLEX	285,216	279,120	285,360	432,240	370,975	30%
ST. HELENS HALL	4,557	6,060	4,456	4,838	5,105	12%
MUNICIPAL OFFICE	47,683	44,801	40,366	39,506	38,140	-20%
WEST WAWANOSH ROAD SHED	21,199	22,083	17,899	12,802	14,561	-31%
BENMILLER PUMP HOUSE	34,825	39,624	29,464	36,790	25,316	-27%
CENTURY HEIGHTS PUMP HOUSE	44,952	46,850	42,802	44,187	24,612	-45%
DUNGANNON PUMP HOUSE	31,743	27,589	28,529	27,940	26,082	-18%
HURON SANDS PUMP HOUSE	6,738	6,572	7,181	8,122	6,505	-3%
LUCKNOW POOL BUILDING	17,932	7,353	16,091	15,534	19,245	7%
<b>TOTAL ELECTRICITY (KWH)</b>	<b>640,265</b>	<b>638,022</b>	<b>608,058</b>	<b>754,871</b>	<b>666,634</b>	

Table 2

PROPANE CONSUMPTION (L)						
	2013	2014	2015	2016	2017	% Change 2013-2017
ASHFIELD ROAD SHED	12,167	16,430	16,151	15,690	10,585	-13%
BENMILLER COMMUNITY HALL	-	-	-	-	3,476	N/A
COLBORNE ROAD SHED	23,197	19,819	19,831	18,797	19,676	-15%
LUCKNOW FIRE DEPARTMENT	13,141	13,697	13,680	12,749	12,142	-8%
LUCKNOW POOL BUILDING	-	2,284	-	5,396	11,447	N/A
LUCKNOW SPORTS COMPLEX	38,178	45,457	39,786	38,563	37,386	-2%
ST. HELENS HALL	3,179	3,847	3,990	3,502	3,306	4%
MUNICIPAL OFFICE	2,862	4,287	3,765	2,835	3,070	7%
WEST WAWANOSH ROAD SHED	10,216	10,260	11,682	9,513	9,255	-9%
<b>TOTAL PROPANE (L)</b>	<b>102,940</b>	<b>116,081</b>	<b>108,885</b>	<b>107,045</b>	<b>110,343</b>	

Figure 1

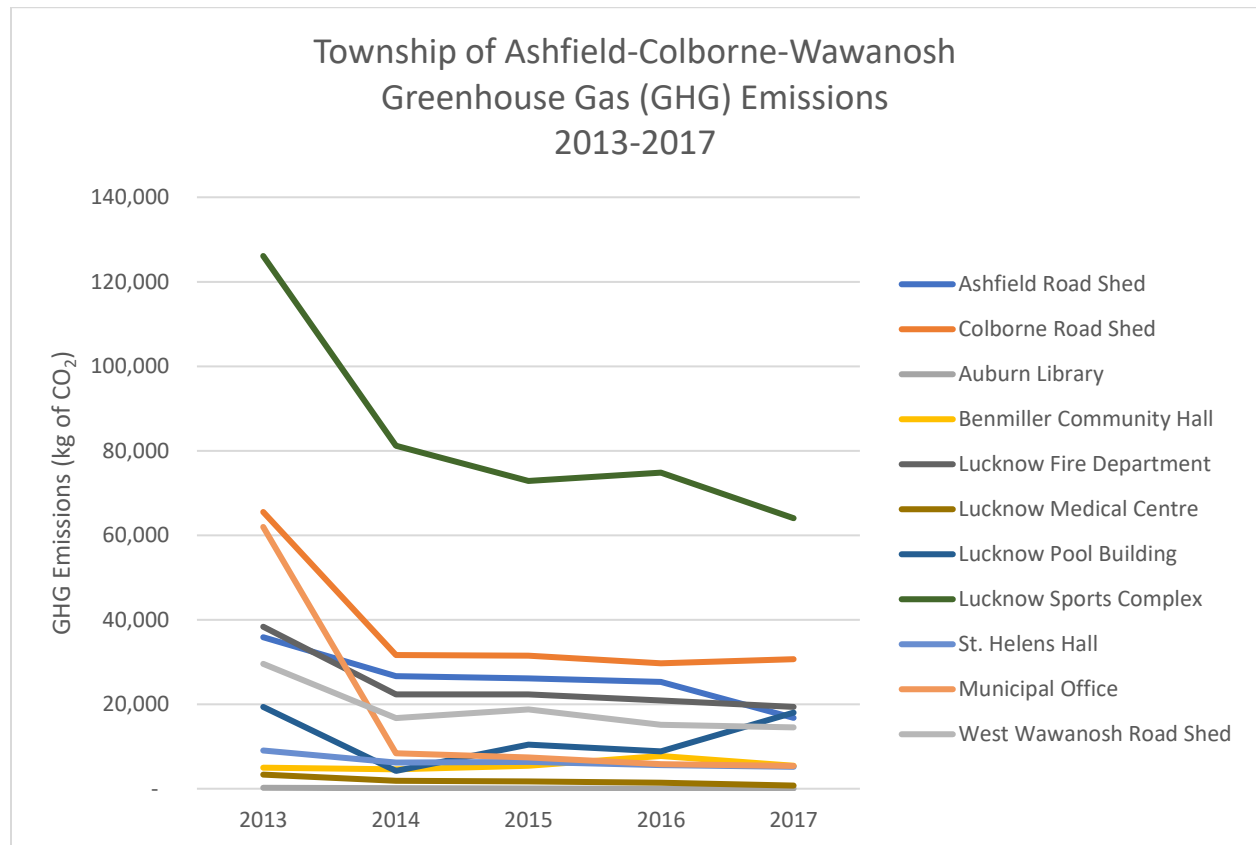


Table 3

<b>GHG EMISSIONS (KG OF CO<sub>2</sub>) BY FACILITY</b>								
	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>% Change 2014-2017</b>
<b>ASHFIELD ROAD SHED</b>	23,605	18,059	35,850	26,622	26,137	25,241	16,772	-37%
<b>AUBURN LIBRARY</b>	192	185	215	144	51	0	21	-85%
<b>BENMILLER COMMUNITY HALL</b>	-	2,221	5,009	4,587	5,466	7,745	5,460	19%
<b>BENMILLER PUMP HOUSE</b>	3,650	2,516	2,647	1,585	1,195	1,308	438	-72%
<b>CENTURY HEIGHTS PUMP HOUSE</b>	5,922	4,781	3,417	1,875	1,736	1,571	426	-77%
<b>COLBORNE ROAD SHED</b>	32,885	24,241	65,503	31,605	31,521	29,687	30,695	-3%
<b>DUNGANNON PUMP HOUSE</b>	3,601	3,354	2,413	1,104	1,157	993	451	-59%
<b>HURON SANDS PUMP HOUSE</b>	863	695	512	263	291	289	113	-57%
<b>LUCKNOW FIRE DEPARTMENT</b>	23,225	20,909	38,336	22,334	22,328	20,918	19,363	-13%
<b>LUCKNOW MEDICAL CENTRE</b>	4,744	3,588	3,338	1,850	1,755	1,385	742	-60%
<b>LUCKNOW POOL BUILDING</b>	2,021	1,929	19,356	4,214	10,421	8,867	17,973	327%
<b>LUCKNOW SPORTS COMPLEX</b>	94,130	94,925	126,103	81,216	72,880	74,790	64,028	-21%
<b>ST. HELENS HALL</b>	4,717	5,052	9,041	6,171	6,329	5,569	5,183	-16%
<b>MUNICIPAL OFFICE</b>	8,311	8,291	61,960	8,399	7,439	5,773	5,391	-36%
<b>WEST WAWANOSH ROAD SHED</b>	18,747	12,849	29,554	16,694	18,728	15,114	14,514	-13%
<b>TOTAL</b>	228,625	205,607	405,267	210,677	209,448	201,266	183,585	-13%

## Changes from Previous Plan to Achieve Goals and Objectives

The 2019 CDM Plan reaffirms the Township's commitment towards energy conservation as well as providing a roadmap for continued progress in energy and greenhouse gas emissions management. It builds on the previous plan through a variety of organizational, technical and behavioural measures to reduce energy use in township facilities.

The Township will review and evaluate the CDM Plan, revising and updating it as necessary, within the planning process and as part of the annual reporting requirements.

## Current and Proposed Energy Conservation Measures

### Streetlight LED Retrofit Project

The Township of Ashfield-Colborne-Wawanosh is currently upgrading to LED streetlighting. Streetlights alone can account for approximately 15% of municipality's electricity use. LEDs consume up to 70% less electricity and reduce maintenance by up to 80% compared to traditional street lighting.

### Recreation Facilities

The Lucknow & District Sports Complex is the most energy intensive of the 15 buildings reported by the Township of Ashfield-Colborne-Wawanosh. It's responsible for approximately 35% of the Township's total greenhouse gas emissions, 34% of total propane use and more than half of the Township's total electricity use. These figures are inline with provincial averages and benchmarks for recreational facilities however, energy conservation opportunities will continue to be implemented, wherever feasible.

### Completed Projects (Lucknow Recreation Facilities)

- Replacement of two compressors for ice refrigeration plant (2017)
- Replacement of two desiccant above arena ice surface (2016)
- Replacement of recirculating pump in pool building (2016)
- Brine pump and evaporative condenser replacement for ice plant (2015)
- Energy efficient lighting upgrades; occupancy sensors in washrooms
  - T5 lighting above ice surface
  - T8 lighting in the rest of facility

### Identified Future Projects (Lucknow Recreation Facilities)

- Exterior lighting upgrade to LED (2019)
- Replace Olympia water heater (2019)
- Replace outdoor pool heater in pool building (2021)
- Caledonia Ball Park LED lighting upgrades (TBD/pending grant funding)
- Pool building LED lighting upgrades (TBD/pending grant funding)

Table 4

**CURRENT AND PROPOSED ENERGY CONSERVATION MEASURES**

<b>FACILITY</b>	<b>MEASURE</b>	<b>COMPLETION DATE</b>
<b>TOWNSHIP OFFICE</b>	Add energy awareness to staff meetings	Ongoing
	Turn off all electronic devices such as coffee makers, printers, calculators, phone chargers, etc. at night and on weekends	Ongoing
	Identify unnecessary plug loads (plug-in phantom power)	Ongoing
	As part of orientation program- provide new staff with energy management training	Ongoing
	Review HVAC system settings monthly to ensure temperature settings and schedules are where they should be	Ongoing
	Routine maintenance to HVAC system (filter replacement) to ensure optimal efficiency	
	Encourage staff to lower shades in the summer to keep heat out and raise them in the winter to let heat in	Ongoing
	Switch from fuel oil to propane heating	2017
<b>BENMILLER COMMUNITY HALL</b>		
<b>STREETLIGHTING</b>	Upgrade to LED streetlights	2020
<b>LUCKNOW MEDICAL CENTRE</b>	Renovations, install occupancy sensor lighting controls	2019
<b>LUCKNOW SPORTS COMPLEX</b>	Exterior lighting upgrade to LED	2019
	Replace Olympia water heater	2019
<b>LUCKNOW POOL BUILDING</b>	Replace outdoor pool heater	2021
<b>CALEDONIA BALL PARK</b>	Upgrade ball diamond lighting to LED	Pending Funding
<b>LUCKNOW POOL BUILDING</b>	LED lighting upgrades in pool house	Pending Funding

Appendix A

**ENERGY CONSUMPTION BENCHMARK (2016)**

	<b>Address</b>	<b>Area (m<sup>2</sup>)</b>	<b>Electricity (kWh)</b>	<b>Fuel Oil (L)</b>	<b>Propane (L)</b>	<b>GHG Emissions (kg CO<sub>2</sub>)</b>	<b>Energy Intensity (ekWh/ft<sup>2</sup>)</b>
<b>ASHFIELD ROAD SHED</b>	36204 Belgrave Rd	929	29,901	-	15,690	25,241	14.02
<b>AUBURN LIBRARY</b>	120 Goderich St	81	1	-	-	0.04	0.00
<b>BENMILLER COMMUNITY HALL</b>	37015 Londesboro Ln	167	7,963	2,728	-	7,745	20.79
<b>BENMILLER PUMP HOUSE</b>	81188 Pfrimmer Rd	-	36,790	-	-	1,308	2,021.10
<b>CENTURY HEIGHTS PUMP HOUSE</b>	81270 Dunlop Dr	-	44,187	-	-	1,571	1,059.51
<b>COLBORNE ROAD SHED</b>	82145 Council Ln	418	20,293	-	18,797	29,687	33.88
<b>DUNGANNON PUMP HOUSE</b>	37103 Dungannon Rd	-	27,940	-	-	993	1,477.53
<b>HURON SANDS PUMP HOUSE</b>	85019 Michelle St S	-	8,122	-	-	289	1,892.36
<b>LUCKNOW FIRE DEPT</b>	Montgomery Ln	798	35,794	-	12,749	20,918	14.60
<b>LUCKNOW MEDICAL CENTRE</b>	691 Havelock St	475	38,960	-	-	1,385	7.62
<b>LUCKNOW POOL BUILDING</b>	676 Campbell St	102	15,534	-	5,396	8,867	48.70
<b>LUCKNOW SPORTS COMPLEX</b>	662 Campbell St	3,986	432,240	-	38,563	74,790	16.39
<b>ST. HELENS HALL</b>	85656 St Helens Ln	167	4,838	-	3,502	5,569	16.39
<b>MUNICIPAL OFFICE</b>	82133 Council Ln	408	39,506	-	2,835	5,773	13.53
<b>WAWANOSH ROAD SHED</b>	84851 St Helens Ln	743	12,802	-	9,513	15,114	9.96