

THE TOWNSHIP OF NORTH DUNDAS

Energy Conservation and Demand Management Plan



2/25/2014

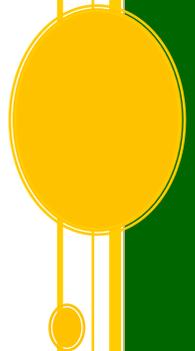


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The Township of North Dundas

Energy Conservation and Demand Management Plan

Introduction

The Township of North Dundas has developed this plan in accordance with Ontario Regulation 397/11 of the Green Energy Act. This regulation requires that the broader public sector, and more specifically municipalities, report on the greenhouse gas emissions and energy consumption annually. Further, it requires the development and implementation of five year Conservation and Demand Management (CDM) plans commencing July 1st, 2014.

Goals and Objectives

Vision

The Township of North Dundas staff, Department Heads, and Council will make reasonable efforts to comply with the nature and objectives of the Ontario Regulation 397/11 of the Green Energy Act. The Township of North Dundas is committed to lowering energy consumption and greenhouse gases through awareness and continuous improvement while keeping in mind any factors that may arise throughout its duration.

Goals

The Township of North Dundas' CDM plan is to work at lowering energy costs through energy conservation as well as to lessen our environmental impact through lowering our Green House Gas Emissions.

The Township of North Dundas will look at reducing energy usage by 4% every year over the duration of this plan from 2014 to 2019 by focusing on the 2011 baseline¹. The Township of North Dundas' energy consumption includes electricity and natural gas.

Objectives

The Township of North Dundas' CDM plan will look at reducing energy consumption over the course of 5 years by:

- 1) Working on achieving energy efficiency in all Township facilities.
- 2) Monitor and report to departments on energy consumption annually
- 3) Analyze energy costs for savings and;
- 4) Raise staff and council awareness around energy efficiency.

Current Energy Consumption Baseline

The Township of North Dundas reports its energy consumption and GHG emissions annually using the Broader Public Sector Excel Template and in accordance with Ontario Regulation 397/11.

Energy Consumption and GHG emissions for 2011 have been reproduced and included (See Appendix A) and will serve as a baseline for this plan.

Our Action List

The Township of North Dundas has been updating facilities including rooftop AC/Heating units and switching to newer, more efficient lighting throughout all of our buildings for the past 5 years and earlier. We are also in the midst of implementing an idle-free policy for Township vehicles, we have within the past year replaced 10 computers at the administrative building with newer, more energy efficient desktops. We are also encouraging those who have access to lighting to turn it off within their offices when they are not in residence.

The Township of North Dundas will aim to reduce GHG Emissions and energy consumption by continuing to implement practical and cost effective measures. Proposed measures will include all Departments working together to identify ways to reduce energy consumption and GHG Emissions, whether it is through technical, behavioral and or organizational initiatives.

The Township will prioritize the actions below based on ease of implementation.

Easy: requiring little effort

Medium: requiring intermediate or some effort

Difficult: requiring much effort or skill to accomplish, deal with, or understand

Description	Facility/Department	Action	Savings	Status
Asset Disposal	All Departments	The Township of North Dundas will consider disposal of underused assets (facilities) to reduce energy consumption and costs.	TBD	Difficult In progress Start - 2014 End - 2019
Power Management	All Departments	Ensuring staff are aware of internal energy savings through turning off work stations and unused lighting at end of day. Look into replacing light switches with occupancy sensors in commonly used rooms such as the washrooms, kitchen and photocopy room. Replace old appliances with more energy efficient ones.	Approx. \$200.00 per year	Easy In Progress Start - 2014 End -2019
Fuel Management	All Departments	The Township of North Dundas is creating an anti-idling policy for its staff and fleet vehicles. This policy will aim to lower greenhouse gas emissions from fleet vehicles and lower fuel consumption	TBD	Easy In Progress Start - 2014 End - 2014
Procurement	All Departments	Over the course of the CDM the Township will investigate and potentially implement new, energy saving policies and practices.	TBD	Easy Not Started Start - 2014 End - 2019
LED Streetlights	Public Works	The Township of North Dundas began replacing high pressure sodium streetlights with LED streetlights in early 2014. The Township will also be investigating replacement of parking lot high pressure sodium lights and converting to LED lighting.	Approx. \$50000.00 Per year	Difficult In Progress Start - 2014 End -2019
AC/Heating replacement	Recreation	The Township of North Dundas will be looking at replacing the rooftop AC/Heating unit at the Joel Steele Arena within the next 5 years.	TBD	Medium In Progress Start - 2014 End - 2019
Energy Audits	All Departments	The Township of North Dundas will investigate energy audits throughout all of its facilities that are in use 40 hours or more a week, starting with the oldest buildings, to help identify and reduce energy usage.	TBD	Difficult Not Started Start - 2014 End - 2019

Implementation

Some projects have been started and will take the full 5 years to plan, implement and realize with energy savings, while other plans will take a short time to accomplish and will be started once budget has been approved.

Departmental Responsibilities

Each department will actively participate in assisting with lowering energy usage and implementation of the actions listed above. Each department will also be responsible for budgeting for the actions they are involved with, monitor results based on energy data provided by support staff and will provide regular updates on the stages of each action at regular Department Head meetings.

Monitoring and Evaluation

Monitoring

The Township of North Dundas, over the course of the 5 year CDM plan, will follow date guidelines set out and will attempt to implement actions according to budgeted amounts. Each Department will be in charge of establishing a budget for any action items within their department.

During the course of the planning, implementation and execution budget and external factors will be taken into consideration and the action may be altered to fit into a new budgeted amount. As well, during the course of planning if new energy saving actions are found they will be identified for future energy planning considerations.

Evaluation

The Township of North Dundas' CDM plan will be reviewed and evaluated every 5 years in accordance with Ontario Regulation 397/11. The next review will begin in January of 2019. This CDM Plan has been approved by the Township of North Dundas' Department Heads and Council as of June 2014.

CDM Plan

As per Ontario Regulation 397/11 The Township of North Dundas will ensure the Broader Public Sector (BPS) Excel Template for 2012 as well as the CDM Plan will be available to the public on the Township of North Dundas' website once the 2012 BPS Excel Template and CDM Plan have been approved.

Appendix A: Reported Energy Consumption 2011

Facility Name	Address	Area (m2)	Average Hours/week	Fuel Type	(gas-m3) (electric - kWh)	Cost (\$)	Energy (kWh/yr)	GHG Emission (kg CO2e/yr)	GHG Intensity(kg CO2e/m2)	Energy Intensity
Page 5										
Municipal Office Building	65 St. Lawrence Street	291.34	40	Electric	229280.00	27309.21	229280.00	18342.40	62.96	786.98
Winchester Arena	577 Main St	2,181.44	80	Electric	588266.00	70950.86	588266.00	47061.28	21.57	269.67
				Natural Gas	15546.40	5200.20	165258.23	29538.16	13.54	75.76
				Natural Gas	9244.40	2945.39	98267.97	17564.36	630.22	3525.94
				Electric	12259.00	43795.67	12259.00	980.72	35.19	439.86
Chesterville Arena	161 Queen St	27.87	20	Electric	282384.00	3066.36	282384.00	22590.72	10.39	129.84
				Natural Gas	19910.10	5848.72	211644.36	37829.19	17.39	97.31
				Electric	11085.00		11085.00	886.80	5.51	68.89
Morewood Library	21 Russell St	160.91	10	Natural Gas						
				Electric	3837.00	848.98	3837.00	306.96	3.07	38.39
Inkerman Recreation Centre	11450 Cameron Rd	99.96	10	Natural Gas						
				Electric	51093.00	6217.16	51093.00	4087.44	16.38	204.75
Mountain Community Hall	10523 Van Allen St	249.54	25	Natural Gas						
				Electric	21218.00	4775.84	21218.00	1697.44	8.70	108.76
				Natural Gas	1413.40	559.90	15024.44	2685.46	13.77	77.01
Nelson Laprade Centre	9 William St	195.09	48	Electric	23890.00	4779.57	23890.00	1911.20	17.14	214.30
South Mountain Library	10543 Main St	111.48	16	Natural Gas	1910.60	1325.85	20309.68	3690.14	32.56	182.18
				Electric	87718.00	9251.24	87718.00	7017.44	10.04	125.56
Chesterville Community Hall	1 Mill St	698.63	40	Natural Gas	2149.90	968.44	22853.44	4084.81	5.85	32.71
				Electric	26542.00	5848.72	26542.00	2123.36	4.48	56.02
Morewood Community Centre	17 Russell St	473.80	10	Natural Gas	7069.70	2368.95	75150.91	13432.43	28.35	158.61
				Electric	4888.90	1856.14	51969.01	9288.91	26.37	147.56
Winchester Cultural Centre	478 Main St	352.19	25	Electric	19171.00	3250.26	19171.00	1533.68	4.35	54.43
				Electric	928.00		928.00	74.24	0.53	6.67
Old Town Hall		139.17	8	Natural Gas	949.90	512.29	10097.44	1804.81	12.97	72.55
				Electric	35629.00	3492.68	35629.00	2850.32	8.69	108.58
Old MTO Garage	12269 County 43	328.13	40	Natural Gas	13593.80	4478.12	144502.09	25828.22	78.71	440.38
				Electric	26743.00	4666.08	26743.00	2139.44	2.58	32.23
Winchester Garage	12715 County 43	829.80	40	Natural Gas	12117.50	3308.73	128809.03	23023.25	27.75	155.23
				Electric	18762.00	3175.69	18762.00	1500.96	5.57	69.64
Landfill	12620 Boyne Rd	269.42	45	Natural Gas						
				Electric	13068.00	1389.83	13068.00	1045.44	12.86	160.76
Ambulance Building	65 St. Lawrence Street	81.29	40	Natural Gas	4208.00	1493.74	44731.04	7995.20	98.35	550.26
				Electric	6663.00	4104.65	6663.00	533.04	2.13	26.56
Mountain Fire Station	1650 County Rd 1	250.84	10	Natural Gas						
				Electric	22216.00	3196.42	22216.00	1777.28	8.61	107.67
Morewood Fire Station	21 Russell St	206.34	15	Natural Gas	5341.10	1813.68	56775.89	10148.09	49.18	275.16
				Electric	24336.00	3355.17	24336.00	1946.88	2.69	33.58
Chesterville Fire Station	1 Industrial Dr	724.64	15	Natural Gas						
				Electric	4512.20	1120.70	47964.69	8573.18	22.51	125.92
Winchester Fire Station		380.90	11	Electric	11722.00	15405.47	11722.00	937.76	2.46	30.77
OPP/Library/Old Council Chambers	7 St. Lawrence Street	945.19	168	Electric	115880.00		115880.00	9270.40	9.81	122.60
				Natural Gas	17036.00	5014.86	181092.68	32368.40	34.25	191.59
Winchester Pool (seasonal)	575 Main St	459.49	20	Electric	26960.00	1996.56	26960.00	2156.80	4.69	58.67
				Natural Gas	4072.50	1605.26	43290.68	7737.75	16.84	94.21
				Electric	13885.00	2390.58	13885.00	1110.80	5.31	66.43
Chesterville Pool (seasonal)	1 William St	209.03	15	Natural Gas	7890.70	2901.63	83878.14	14992.33	71.72	401.27
Facility Type Total					\$ 266,098.57		3,075,154.71	384,407.49		

Water/Sewer	Facility Name	Address	Area (m2)	Avg Hours/week	Fuel Type	Consumption	Cost	Energy (kWh/yr)	GHG Emission (kg CO2e/yr)	GHG Intensity (kg CO2e/m2)	Energy Intensity	Flow (Mega Liter)	Energy Intensity (kWh/Mega Liter)
	Chesterville Sewer		223.99	168	Electric	93836.00	1252.01	93835.00	7506.88	33.51	418.92	498.60	2.23
	Lori Lane Pump	35 Lori Lane		168				1032.00				268.06	
	Pumping Station	2804 Water St		168				54038.00				196.27	
	Chesterville Lagoon	CON 4 Lot 9		168				38765.00				34.27	
	Former Nestle Lagoon	101 Emma St.		168				288999.99	23120.00	89.78	1122.20	1478.16	5.74
	Winchester Sewer		257.53	168	NATURAL GAS	3053.38	304.41	32457.38	5801.41	22.53	32457.38	157.68	
	Winchester Pumping Station	475 Ottawa St.		168				72035.33				193.30	
	Winchester Lift Station	583A St. Lawrence St		168				72035.33				193.30	
	Winchester Main St Sewage P	586 Main St		168				72035.33				193.30	
	Conession 7 Lot 6 Lagoon Win	12396 County Rd 3		168				147.00				579.89	
	Winchester (Pump Station 4)	12048 Main St		168				1222.00				3.02	
	VCS Drain Pump	Con 5 Lot 6 Belanger Rd		168				1978.00				157.68	
	Winchester Pump Station	Con 6 Lot 20 Boyne Rd		168				69547.00				157.68	
	Chesterville Drinking		192.21	168	Electric	122048.00	44204.69	122048.00	9763.84	50.80	634.97	675.26	3.51
	Reservoir (Chesterville)	Brannen Rd		168				59175.00				253.22	
	Chesterville Well #5 and 6	12975 Cvy Rd 43		168				62872.00				168.81	
	Chesterville Water Tower	225 Main St North		168				1.00				253.22	
	Winchester Drinking		295.34	168	Electric	279369.00	1848.44	279369.00	22349.52	75.67	945.92	860.58	2.91
	Winchester Well Cvy Rd 31 #5	2137 Hwy 31		168				31436.00				66.05	
	Winchester Well Spruit Rd #6	11610 Spruit Rd		168				73816.00				107.11	
	Well # 7 Thompson Rd	13224 Thompson Rd		168				102863.00				337.63	
	Well # 1 St. Lawrence Street P	663 St. Lawrence Street		168				55916.00				82.49	
	Winchester Water Tower	472 Centre St		168				1.00				262.99	
	Gypsy Lane Pump/Reservoir	424 Gypsy Lane		168				15337.00				4.32	
	Facility Type Total						\$ 69,876.73	3,939,569.34	77068.46207				
	Grand Total						\$ 335,975.30	7,014,724.05	461,475.95				

Facility Name	Address	Area (m ²)	Average Hours/week	Fuel Type	Consumption (gas-m ³) (electric - kWh)	Cost (\$)	Energy (kWh/yr)	GHG Emission (kg CO ₂ e/yr)	GHG Intensity (kg CO ₂ e/m ²)	Energy Intensity
Municipal Office Building	636 St. Lawrence Street	291.34	40	Electric	29553.88	2839.65	29553.88	23644.31	81.16	1014.46
Winchester Arena	577 Main St	2,181.44	80	Natural Gas	705.70	208.61	7501.55	1340.83	4.60	25.75
Chesterville Arena Maintenance Shed	161 Queen St	27.87	20	Electric	663050.00	80009.24	663050.00	53044.00	24.32	303.95
Chesterville Arena	159 Queen St	2,174.84	40	Natural Gas	9856.00	5324.77	104769.28	18756.40	8.58	48.03
Morewood Library	21 Russell St	160.91	10	Electric	8698.20	2756.56	92461.87	16526.58	592.99	3317.61
Inkerman Recreation Centre	11450 Cameron Rd	99.96	10	Electric	11977.00	4397.152	11977.00	958.16	34.38	429.75
Mountain Community Hall	10523 Van Allen St	249.54	25	Natural Gas	226176.00	2869.08	226176.00	18094.08	8.32	104.00
Nelson Laprade Centre	9 William St	195.09	48	Electric	19014.50	4909.01	202124.14	36127.55	16.61	92.94
South Mountain Library	10543 Main St	111.48	16	Natural Gas	121.00	860.10	121.00	9.68	0.06	0.75
Chesterville Heritage Hall	14 Victoria St	166.95	20	Electric	3329.00	860.10	3329.00	266.32	2.66	33.30
Chesterville Community Hall	1 Mill St	698.63	40	Natural Gas	44594.00	6537.55	44594.00	3567.52	14.30	178.70
Morewood Community Centre	17 Russell St	473.80	10	Electric	29032.00	4812.13	29032.00	2322.56	11.91	148.81
Winchester Cultural Centre	478 Main St	352.19	25	Natural Gas	1271.20	624.12	13512.86	2415.28	12.38	69.26
Old Town Hall	139.17	139.17	8	Electric	16043.00	3566.88	16043.00	1283.44	11.51	143.91
Old WTO Garage	12269 County 43	328.13	40	Natural Gas	1241.20	624.33	13193.96	2358.28	21.15	118.35
Winchester Garage	12715 County 43	829.80	40	Electric	5942.20	887.81	56787.55	179.20	1.07	13.42
Landfill	12620 Boyne Rd	269.42	45	Natural Gas	41347.00	5443.60	41347.00	10150.18	60.80	340.15
Ambulance Building	636 St. Lawrence Street	81.29	40	Electric	2612.50	1019.61	27770.88	4963.75	7.10	39.75
Mountain Fire Station	1650 County Rd 1	250.84	10	Natural Gas	24681.00	4909.01	24681.00	1974.48	4.17	52.09
Morewood Fire Station	21 Russell St	206.34	15	Electric	6765.10	2217.52	71913.01	12853.66	27.13	151.78
Chesterville Fire Station	1 Industrial Dr	724.64	15	Natural Gas	1522.50	16184.18	16184.18	2892.75	8.21	45.95
Winchester Fire Station	380.90	380.90	11	Electric	19752.00	3322.15	19752.00	1580.16	4.49	56.08
OPP/Library/Old Council Chambers	547 St. Lawrence Street	945.19	168	Natural Gas	580.00	580.00	580.00	46.40	0.33	4.17
Winchester Pool (seasonal)	575 Main St	459.49	20	Electric	5070.80	1693.36	53902.60	9634.52	69.23	387.31
Chesterville Pool (seasonal)	1 William St	209.03	15	Natural Gas	33561.00	4023.32	33561.00	2684.88	8.18	102.28
Facility Type Total					9884.50	3456.25	105072.24	18780.55	57.24	320.22
					5141.12	5141.12	24484.00	1958.72	2.36	29.51
					10678.70	3463.87	113514.58	20289.53	24.45	136.80
					18415.00	3067.59	18415.00	1473.20	5.47	68.35
					11238.00	1693.36	11238.00	899.04	11.06	138.25
					3805.20	1060.87	40449.28	7229.88	88.94	497.55
					5722.00	3679.21	5722.00	457.76	1.82	22.81
					20897.00	3305.44	20897.00	1671.76	8.10	101.27
					4942.20	1705.45	52535.59	9390.16	45.51	254.61
					19703.00	2982.19	19703.00	1576.24	2.18	27.19
					4298.80	1034.99	45696.24	8167.72	21.44	119.97
					11180.00	14674.91	11180.00	894.40	2.35	29.35
					114711.00	14674.91	114711.00	9176.88	9.71	121.36
					16646.40	3316.96	176951.23	31628.16	33.46	187.21
					12760.00	2003.38	12760.00	1020.80	2.22	27.77
					2134.80	790.31	22692.92	4056.12	8.83	49.39
					15417.00	1742.68	15417.00	1233.36	5.90	73.75
					6139.00	2021.01	65257.57	11664.10	55.80	312.19
						\$ 262,061.83	2,941,353.87	361,180.33		

Water/Sewer														
Facility Name	Address	Area (m2)	Avg Hours/week	Fuel Type	Consumption	Cost	Energy (kWh/yr)	GHG Emission (kg CO2e/yr)	GHG Intensity (kg CO2e/m2)	Energy Intensity	Flow (Mega Liter)	Energy Intensity (kWh/Mega Liter)		
Chesterville Sewer		223.99	168.00	Electric	93,836.00	1,252.01	93,836.00	7,506.88	33.51	418.93	428.30	1.91		
Natural Gas														
Lori Lane Pump	35 Lori Lane		168.00				909.00				4.47			
Chesterville Pumping Station	2804 Water St		168.00				44,816.00				193.30			
Chesterville Lagoon	CON 4 Lot 19		168.00				1.00				196.27			
Former Nestle Lagoon	101 Emma St.		168.00				1,875.00				34.27			
Winchester Sewer		257.53	168.00	Electric	288,999.99	22,267.18	288,999.99	23,120.00	89.78	1,122.20	974.88	3.79		
Natural Gas														
Winchester Pumping Station	475 Ottawa St.		168.00				89,340.00				193.30			
Winchester Lift Station	583A St. Lawrence St		168.00				8,332.00				193.30			
Winchester Main St Sewage Pump	586 Main St		168.00				20,616.00				193.30			
Concession 7 Lot 6 Lagoon Winchester	12396 County Rd 3		168.00				117,643.00				391.47			
Winchester (Pump Station 4)	12048 Main St		168.00		514.00		2,255.00				3.02			
VCS Drain Pump	CON 5 Lot 6 Balanger Rd		168.00				952.00				0.18			
Winchester Pump Station	CON 6 Lot 20 Boyne Rd		168.00				48,291.00				0.32			
Chesterville Drinking		192.21	168.00	Electric	122,048.00	44,204.69	122,048.00	9,763.84	50.80	634.97	675.26	3.51		
Natural Gas														
Reservoir (Chesterville)	Brannen Rd		168.00				52,786.00				253.22			
Chesterville Well #5 and 6	12975 Cvy Rd 43		168.00				76,572.00				168.81			
Chesterville Water Tower	225 Main St North		168.00				9,621.00				253.22			
Winchester Drinking		295.34	168.00	Electric	279,369.00	1,848.44	279,369.00	22,349.52	75.67	945.92	908.14	3.07		
Natural Gas														
Winchester Well Cvy Rd 31 #5	2137 Cvy Rd 31		168.00				27,808.00				66.05			
Winchester Well Spruit Rd #5	11610 Spruit Rd		168.00				43,696.00				107.11			
Well # 7 Thompson Rd	13224 Thompson Rd		168.00		608.30		75,618.00				337.63			
Well # 1 St. Lawrence Street Pump	663 St. Lawrence Street		168.00		1,137.60		39,689.00				82.49			
Winchester Water Tower	472 Centre St		168.00				1.00				262.99			
Gypsy Lane Pump/Reservoir	424 Gypsy Lane		168.00		4,223.40		100,150.00				51.88			
Facility Type Total														
Grand Total					69,876.73	3,830,102.90	80,076.97	331,938.56	6,771,456.77	441,257.30				

References and Notes

"Introduction and Background," *A Guide to Preparing Conservation Demand Management Plans*, (Ministry of Energy, 2013)

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Energy Management Plan, *County of Peterborough*, February 2013

Sample Energy Conservation and Demand Management Plan, *LAS Energy Planning Tool*