

THE TOWNSHIP OF NORTH DUNDAS

Energy Conservation and Demand Management Plan



2/25/2014

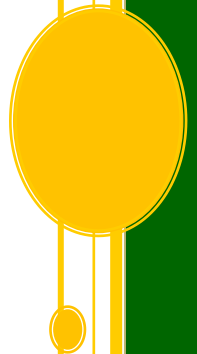


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The Township of North Dundas

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.

Page 5		Appendix A: Reported Energy Consumption 2011								
Facility Name	Address	Area (m2)	Average Hours/week	Fuel Type	(gas- m3) (electric - kWh)	Cost (\$)	Energy (ekWh/yr)	GHG Emission (kg CO2e/yr)	GHG Intensity(kg CO2e/m2)	Energy Intensity
Municipal Office Building	6 St. Lawrence Stre	291.34	40	Electric	229280.00	27309.21	229280.00	18342.40	62.96	786.98
				Natural Gas						
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
Chesterville Arena Maintenance Sh	161 Queen St	27.87	20	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	153 Queen St	2,174.84	40	Electric	282384.00		282384.00	22590.72	10.39	129.84
				Natural Gas	19910.10	3066.36	211644.36	37829.19	17.39	97.31
Morewood Library	21 Russell St	160.91	10	Electric	11085.00	5848.72	11085.00	886.80	5.51	68.89
				Natural Gas						
Inkerman Recreation Centre	11450 Cameron Rd	99.96	10	Electric	3837.00	848.98	3837.00	306.96	3.07	38.39
				Natural Gas						
Mountain Community Hall	10523 Van Allen St	249.54	25	Electric	51093.00	6217.16	51093.00	4087.44	16.38	204.75
				Natural Gas						
Nelson Laprade Centre	9 William St	195.09	48	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
South Mountain Library	10543 Main St	111.48	16	Electric	23890.00	4779.57	23890.00	1911.20	17.14	214.30
				Natural Gas	1910.60	1325.85	20309.68	3630.14	32.56	182.18
Chesterville Community Hall	1 Mill St	698.63	40	Electric	87718.00	9251.24	87718.00	7017.44	10.04	125.56
				Natural Gas	2149.90	968.44	22853.44	4084.81	5.85	32.71
Morewood Community Centre	17 Russell St	473.80	10	Electric	26542.00	5848.72	26542.00	2123.36	4.48	56.02
				Natural Gas	7069.70	2368.95	75150.91	13432.43	28.35	158.61
Winchester Cultural Centre	478 Main St	352.19	25	Natural Gas	4888.90	1856.14	51969.01	9288.91	26.37	147.56
				Electric	19171.00	3250.26	19171.00	1533.68	4.35	54.43
Old Town Hall	139.17	8	Electric	928.00		928.00	74.24	0.53	6.67	
				Natural Gas	949.90	512.29	10097.44	1804.81	12.97	72.55
Old MTO Garage	12269 County 43	328.13	40	Electric	35629.00	3492.68	35629.00	2850.32	8.69	108.58
				Natural Gas	13593.80	4478.14	144502.09	25828.22	78.71	440.38
Winchester Garage	12715 County 43	829.80	40	Electric	26743.00	4686.08	26743.00	2139.44	2.58	32.23
				Natural Gas	12117.50	3308.73	128809.03	23023.25	27.75	155.23
Landfill	12620 Boyne Rd	269.42	45	Electric	18762.00	3175.69	18762.00	1500.96	5.57	69.64
				Natural Gas						
Ambulance Building	6 St. Lawrence Stre	81.29	40	Electric	13068.00	1389.83	13068.00	1045.44	12.86	160.76
				Natural Gas	4208.00	1493.74	44731.04	7995.20	98.35	550.26
Mountain Fire Station	1650 County Rd 1	250.84	10	Electric	6663.00	4104.65	6663.00	533.04	2.13	26.56
				Natural Gas						
Morewood Fire Station	21 Russell St	206.34	15	Electric	22216.00	3196.42	22216.00	1777.28	8.61	107.67
				Natural Gas	5341.10	1813.68	56775.89	10148.09	49.18	275.16
Chesterville Fire Station	1 Industrial Dr	724.64	15	Electric	24336.00	3355.17	24336.00	1946.88	2.69	33.58
				Natural Gas						
Winchester Fire Station	7 St. Lawrence Stre	380.90	11	Natural Gas	4512.20	1120.70	47964.69	8573.18	22.51	125.92
					Electric	11722.00	15405.47	11722.00	937.76	2.46
OPP/Library/Old Council Chambers	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
Chesterville Pool (seasonal)	1 William St	209.03	15	Electric	13885.00	2390.58	13885.00	1110.80	5.31	66.43
				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		

Appendix A Con't: Reported Energy Consumption 2011

Water/Sewer												
Facility Name	Address	Area (m2)	Avg Hours/week	Fuel Type	Consumption	Cost	Energy (ekWh/yr)	GHG Emission (kg CO2e/yr)	GHG Intensity (kg CO2e/m2)	Energy Intensity	Flow (Mega Liter)	Energy Intensity (ekWh/Mega Liter)
Chesterville Sewer		223.99	168	Electric Natural Gas	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									
Chesterville Lagoon	CON 4 Lot 9		168				54038.00				196.27	
Former Nestle Lagoon	101 Emma St.		168				38765.00				34.27	
Winchester Sewer		257.53	168	Electric Natural Gas	288999.99 3053.38	22267.18 304.41	288999.99 32457.38	23120.00 5801.41	89.78 22.53	1122.20 32457.38	1478.16	5.74
Winchester Pumping Station	475 Ottawa St.		168		633.47		72035.33				193.30	
Winchester Lift Station	583A St. Lawrence St		168		633.47		72035.33				193.30	
Winchester Main St Sewage P	586 Main St		168		633.47		72035.33				193.30	
Conession 7 Lot 6 Lagoon Win	12396 County Rd 3		168		633.47		147.00				579.89	
Winchester (Pump Station 4)	12048 Main St		168		519.50		1222.00				3.02	
VC5 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 Natural Gas	122048.00 1216.60	44204.69	122048.00 12932.42	9763.84 2311.53	50.80 12.03	634.97 12932.42	675.26	3.51
Reservoir (Chesterville)	Brannen Rd		168		1,216.60		59175.00				253.22	
Chesterville Well #5 and 6	12975 Cty 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 Natural Gas	279369.00 3271.20	1848.44	279369.00 34772.84	22349.52 6215.28	75.67 21.04	945.92 34772.84	860.58	2.91
Winchester Well Cty Rd 31 #5	2137 Hwy 31		168		1,348.70		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		608.30		102863.00				337.63	
Well # 1 St. Lawrence Street P	663 St. Lawrence Street		168		1,091.10		55916.00				82.49	
Winchester Water Tower	472 Centre St		168				1.00				262.99	
Gypsy Lane Pump/Reservoir	424 Gypsy Lane		168		223.10		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				

Page 7	Appendix A: Unreported Energy Consumption 2012									
Facility Name	Address	Area (m2)	Average Hours/week	Fuel Type	Consumption (gas- m3) (electric - kWh)	Cost (\$)	Energy (ekWh/yr)	GHG Emission (kg CO2e/yr)	GHG Intensity (kg CO2e/m2)	Energy Intensity
Municipal Office Building	636 St. Lawrence Street	291.34	40	Electric	295553.88	28398.65	295553.88	23644.31	81.16	1014.46
				Natural Gas	705.70	208.61	7501.59	1340.83	4.60	25.75
Winchester Arena	577 Main St	2,181.44	80	Electric	663050.00	80009.24	663050.00	53044.00	24.32	303.95
				Natural Gas	9856.00	5324.77	104769.28	18726.40	8.58	48.03
Chesterville Arena Maintenance Shed	161 Queen St	27.87	20	Natural Gas	8698.20	2756.56	92461.87	16526.58	592.99	3317.61
				Electric	11977.00		11977.00	958.16	34.38	429.75
Chesterville Arena	153 Queen St	2,174.84	40	Electric	226176.00	43971.52	226176.00	18094.08	8.32	104.00
				Natural Gas	19014.50	2869.08	202124.14	36127.55	16.61	92.94
Morewood Library	21 Russell St	160.91	10	Electric	121.00	4909.01	121.00	9.68	0.06	0.75
				Natural Gas						
Inkerman Recreation Centre	11450 Cameron Rd	99.96	10	Electric	3329.00	860.10	3329.00	266.32	2.66	33.30
				Natural Gas						
Mountain Community Hall	10523 Van Allen St	249.54	25	Electric	44594.00	6537.65	44594.00	3567.52	14.30	178.70
				Natural Gas						
Nelson Laprade Centre	9 William St	195.09	48	Electric	29032.00	4812.13	29032.00	2322.56	11.91	148.81
				Natural Gas	1271.20	624.12	13512.86	2415.28	12.38	69.26
South Mountain Library	10543 Main St	111.48	16	Electric	16043.00	3566.88	16043.00	1283.44	11.51	143.91
				Natural Gas	1241.20	624.33	13193.96	2358.28	21.15	118.35
Chesterville Heritage Hall	14 Victoria St	166.95	20	Electric	2240.00	413.51	2240.00	179.20	1.07	13.42
				Natural Gas	5342.20	587.81	56787.59	10150.18	60.80	340.15
Chesterville Community Hall	1 Mill St	698.63	40	Electric	41347.00	5443.60	41347.00	3307.76	4.73	59.18
				Natural Gas	2612.50	1019.61	27770.88	4963.75	7.10	39.75
Morewood Community Centre	17 Russell St	473.80	10	Electric	24681.00	4909.01	24681.00	1974.48	4.17	52.09
				Natural Gas	6765.10	2217.52	71913.01	12853.69	27.13	151.78
Winchester Cultural Centre	478 Main St	352.19	25	Natural Gas	1522.50		16184.18	2892.75	8.21	45.95
				Electric	19752.00	3322.15	19752.00	1580.16	4.49	56.08
Old Town Hall	139.17	8	Electric	580.00		580.00	46.40	0.33	4.17	
			Natural Gas	5070.80		53902.60	9634.52	69.23	387.31	
Old MTO Garage	12269 County 43	328.13	40	Electric	33561.00	4023.32	33561.00	2684.88	8.18	102.28
				Natural Gas	9884.50	3456.25	105072.24	18780.55	57.24	320.22
Winchester Garage	12715 County 43	829.80	40	Electric	24484.00	5141.12	24484.00	1958.72	2.36	29.51
				Natural Gas	10678.70	3463.87	113514.58	20289.53	24.45	136.80
Landfill	12620 Boyne Rd	269.42	45	Electric	18415.00	3067.59	18415.00	1473.20	5.47	68.35
				Natural Gas						
Ambulance Building	636 St. Lawrence Street	81.29	40	Electric	11238.00	1693.36	11238.00	899.04	11.06	138.25
				Natural Gas	3805.20	1060.87	40449.28	7229.88	88.94	497.59
Mountain Fire Station	1650 County Rd 1	250.84	10	Electric	5722.00	3679.21	5722.00	457.76	1.82	22.81
				Natural Gas						
Morewood Fire Station	21 Russell St	206.34	15	Electric	20897.00	3305.44	20897.00	1671.76	8.10	101.27
				Natural Gas	4942.20	1705.45	52535.59	9390.18	45.51	254.61
Chesterville Fire Station	1 Industrial Dr	724.64	15	Electric	19703.00	2982.19	19703.00	1576.24	2.18	27.19
				Natural Gas						
Winchester Fire Station	547 St. Lawrence Street	380.90	11	Natural Gas	4298.80	1034.99	45696.24	8167.72	21.44	119.97
				Electric	11180.00	14674.91	11180.00	894.40	2.35	29.35
OPP/Library/Old Council Chambers	945.19	168	Electric	114711.00		114711.00	9176.88	9.71	121.36	
			Natural Gas	16646.40	3316.96	176951.23	31628.16	33.46	187.21	
Winchester Pool (seasonal)	575 Main St	459.49	20	Electric	12760.00	2003.38	12760.00	1020.80	2.22	27.77
				Natural Gas	2134.80	790.31	22692.92	4056.12	8.83	49.39
Chesterville Pool (seasonal)	1 William St	209.03	15	Electric	15417.00	1742.68	15417.00	1233.36	5.90	73.75
				Natural Gas	6139.00	2021.01	65257.57	11664.10	55.80	312.19
Facility Type Total						\$ 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 (ekWh/yr)	GHG Emission (kg CO2e/yr)	GHG Intensity (kg CO2e/m2)	Energy Intensity	Flow (Mega Liter)	Energy Intensity (ekWh/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	514.00	304.41	5,463.82	976.60	3.79	21.22		
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	
Conession 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	
VC5 Drain Pump	Con 5 Lot 6 Belanger 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	1,216.60		12,932.42	2,311.53	12.03	67.28		
Reservoir (Chesterville)	Brannen Rd		168.00	2,562.25			52,786.00				253.22	
Chesterville Well #5 and 6	12975 Cty 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		279,369.00	22,349.52	75.67	945.92	908.14	3.07
				Natural Gas	7,394.00	1,848.44	78,598.20	14,048.60	47.57	266.13		
Winchester Well Cty Rd 31 #5	2137 Cty Rd 31		168.00	1,424.70			27,808.00				66.05	
Winchester Well Spruit Rd #6	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						69,876.73	3,830,102.90	80,076.97				
Grand Total						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)

Conservation and Demand Management Plan – *Township of Perth*, 2013-2018

Conservation and Demand Management Plan – *United Counties of Stormont, Dundas and Glengarry*, 2014-2019

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

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