The Municipality of Leamington

Five Year Energy Conservation and Demand Management Plan

July, 2014

LEAMINGTON
ONTARIO CANADA

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Section 1- Introduction

1.1 Background

In 2009, Ontario Regulation 397/11 enacted under the Green Energy Act, 2009 directed all public agencies in Ontario to annually report energy consumption and greenhouse gas emissions emitted by all publicly operated buildings beginning July 1, 2013, and every year thereafter. Examples of such buildings are:

- Administrative offices
- Fire stations and facilities
- Police stations and facilities
- Storage facilities
- Water and sewage pumping facilities
- Recreation facilities

Additionally, public agencies are required to develop Energy Conservation and Demand Management Plans. The first plan must be completed and published by July 1, 2014. The plan must be reviewed, updated and published every fifth anniversary year thereafter.

1.2 Purpose

The Energy Conservation and Demand Management Plan, which will be referred to as the "CDMP" throughout the remainder of this document, will be a living document to assist the Municipality of Leamington in implementing energy conservation initiatives at municipally owned facilities and in municipal operations. The aim of the plan will be to provide a framework for the Municipality to reduce the quantity of electricity and natural gas consumed, thus reducing energy costs and greenhouse gas emissions.

This CDMP will be both logical and practical in the approach to long term energy management. This plan is not intended to set out elaborate blueprints of capital investment or commit to extensive and expensive programs to reduce energy consumption without adequate return on investment for the municipality. This first CDMP is rather about establishing key goals and objectives that when achieved, will transition the Municipality of Leamington to a state of improved energy efficiency. This plan will focus on capital projects related to energy conservation, improved building controls design, energy use stewardship, and employee behavioral modification as it relates to energy consumption. As a result, the plan will require significant staff involvement and embracement into corporate culture to effectively lower municipal energy consumption.

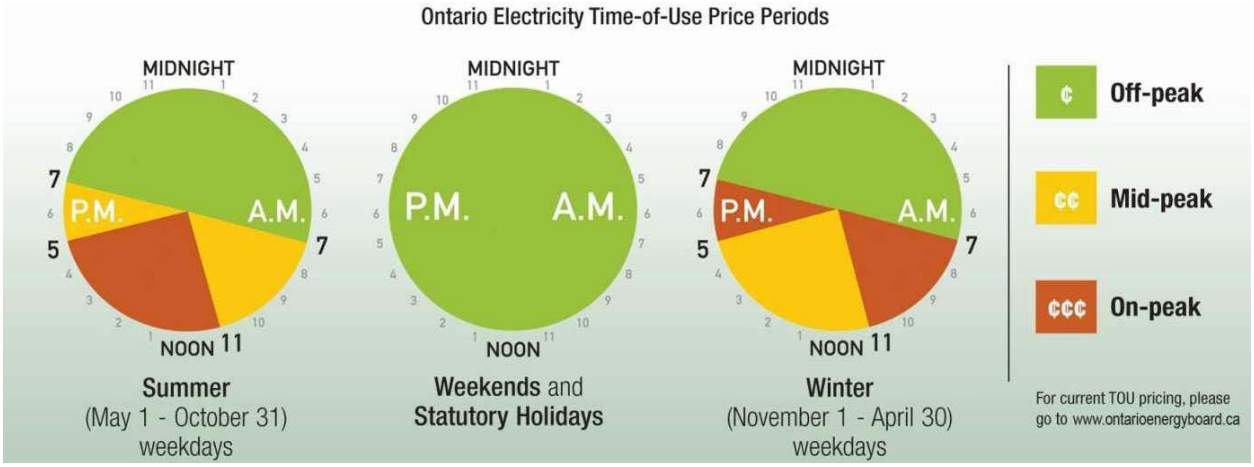
This CDMP and the actions identified within will align with Leamington Municipal Council's strategic objective to 'Promote Environmental Stewardship'.

1.3 Approach

In 2012, the Municipality of Leamington implemented the use of 'Energy Management Tool' software provided by the Local Authority Services, a subsidiary of the Association of Municipalities of Ontario. This software is currently being used to track ongoing energy usage by municipal facilities based on monthly utility invoicing, and to report energy consumption to the Ministry of Energy as required by the Green Energy Act. The Municipality of Leamington hired Essex Energy Corporation to assist with the initial data collection and data upload to the Ministry in 2012, but now manages and submits the data in-house since that time.

All consumption data from 2009 to current was entered into the software to form a baseline of energy consumption in the form of kilowatt-hours (kwh) for electricity and cubic m. (cu. M.) for natural gas.

Time of use billing within the province varies the prices of electricity throughout the day, between 7.2 cents per kilowatt hour to 12.9 cents per kilowatt hour at the time of this report. Those prices vary throughout the day and change with winter and summer seasons as shown below. Energy conservation strategies with regards to electricity will need to consider the seasonal variation in electricity costs based on time of use throughout the day.



Section 2- Our Organization

2.1 Municipality of Leamington Profile

The Municipality of Leamington has 14 buildings and 11 pump stations considered part of the CDMP. The rural Drainage Scheme pumps were not included in the CDMP as the pumps are not municipally owned assets. Table 2.1 presents a list of all Leamington facilities, location, and the year they were constructed.

Table 2.1: Overview of Leamington Facilities

Category	Name	Address	Year
Sanitary Pump Station			
Sanitary Pump stations	Erie Street South	399 Erie St S	2013
Sanitary Pump stations	Robson Rd	99 Robson Rd	1976
Sanitary Pump stations	Erie Glenn	7 Cherry Lane	1993
Sanitary Pump stations	Wilousa	3 Seneca Dr	1988
Sanitary Pump stations	Sandy Lakes	130 Ellison Ave	1998
Sanitary Pump stations	Anfred	9 Anfred St	1999
Sanitary Pump stations	Talbot East	215 Talbot St E	1972
Sanitary Pump stations	Malibu	196 Robson Rd	2004
Sanitary Pump stations	Robson Road 2	327 Robson Rd	2007
Storm Pump stations			
Storm Pump stations	Robson Rd Pump	248 Robson Rd	1993
Storm Pump stations	Robson Rd 2nd Pump	415 Robson Rd	2007
Municipal Buildings			
Municipal Buildings	Leamington Kinsmen Recreation Complex	249 Sherk St	1985
Municipal Buildings	Municipal Building	111 Erie St N	2011
Municipal Buildings	Fire Station	7 Clark St W	1983
Municipal Buildings	Police Station	7 Clark St W	1982
Municipal Buildings	Court House	7 Clark St W	1982
Municipal Buildings	Water Department Building	10 Hazelton St	1960
Municipal Buildings	Public Works Department Building	83 Wilkinson Dr	1985
Municipal Buildings	Public Works Garage	436 Highway 77	1970
Municipal Buildings	Marina Building	90 Robson Rd	1989
Municipal Buildings	Library	1 John St	1991
Municipal Buildings	Tourist Information Centre (Big Tomato)	72 Talbot St W	1961
Municipal Buildings	Pollution Control Centre	435 Seacliff Dr E	2011
Municipal Buildings	Art Gallery	72 Talbot St W	1911

2.2 Streetlights

While not required under legislation, streetlights will be included in this CDMP since they are a major source of energy consumption within the municipality. Streetlights consume approximately 1.55 million kwh of electricity each year. The municipal streetlight inventory is broken down by type, wattage and quantity in Table 2.2 below.

Table 2.2 Streetlight Inventory

Type	Wattage	Quantity
High Pressure Sodium	70	251
High Pressure Sodium	100	199
High Pressure Sodium	150	1411
High Pressure Sodium	175	70
High Pressure Sodium	200	249
High Pressure Sodium	250	23
High Pressure Sodium	400	4
High Pressure Sodium	1000	2
LED	83	2
LED	110	3
LED	200	19

2.3 Current Energy Consumption

Maintaining records is one of the key factors in managing corporate energy consumption and calculating greenhouse gas emissions (ghg). The 2012 energy consumption data is presented in Table 2.3 below. Historical consumption data in graph format can be found in Appendix A and Appendix B.

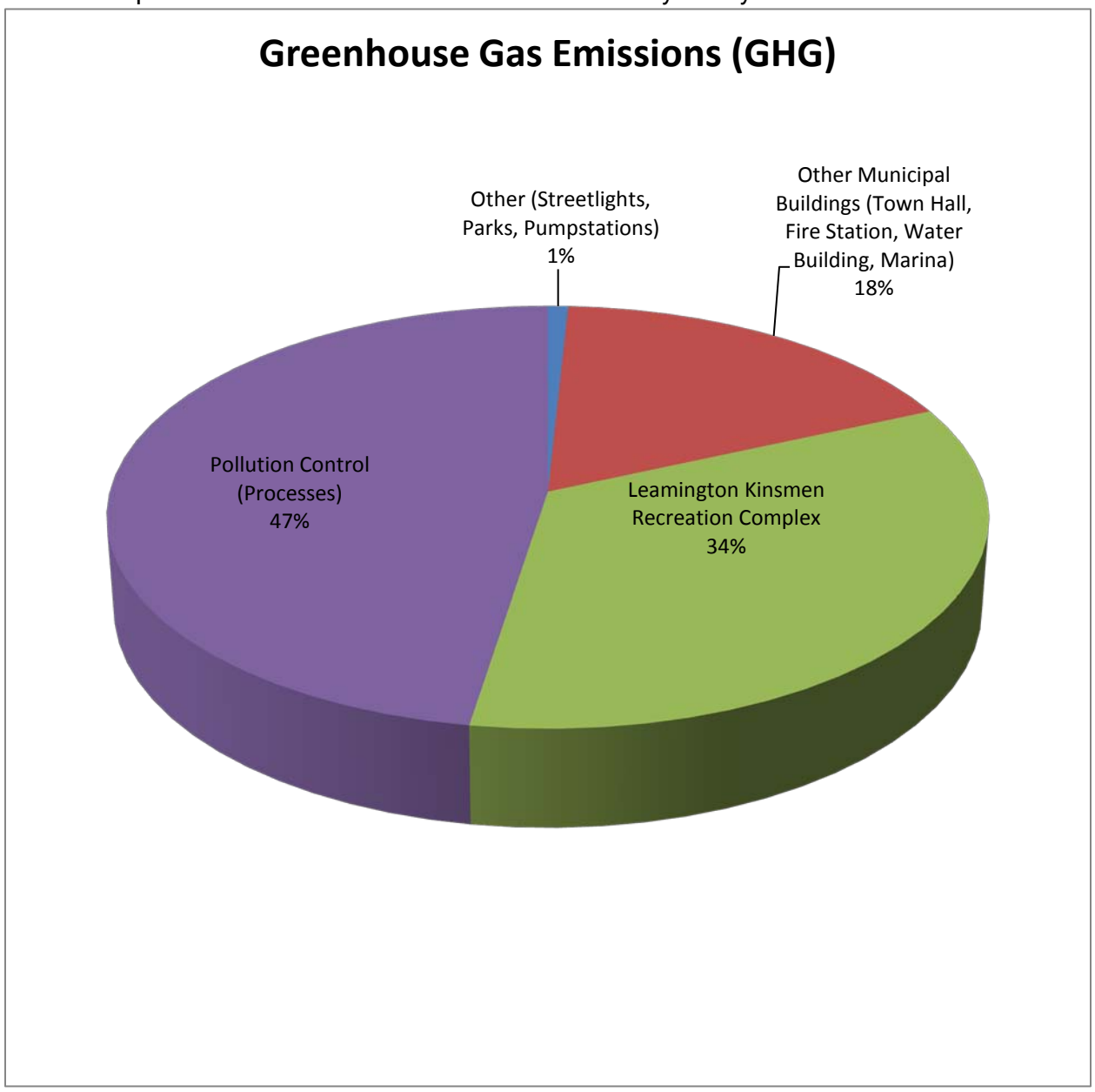
Table 2.3 Municipality of Leamington Energy Consumption for 2012

Location	Electricity Quantity (kwh)	Natural Gas (cu.m.)
Sanitary Pump Station		
399 Erie Street South	42,070	N/A
99 Robson Road	8,200	N/A
7 Cherry Lane	3,411	N/A
3 Seneca Drive	18,672	N/A
130 Ellison Avenue	14,718	N/A
9 Anfred Street	3,787	N/A
215 Talbot Street East	1,323	N/A
196 Robson Road	4,128	N/A
327 Robson Road	4,093	N/A

Storm Pump Station		
248 Robson Road	1,373	N/A
415 Robson Road	2,438	N/A
Municipal Buildings		
249 Sherk Street	2,895,495	330,486.03
111 Erie Street North	568,692	80,538.419
7 Clark Street West - Fire	88,862	6,656.105
7 Clark Street West - Police	300,004	21,854.74
7 Clark Street West - Court	(included in Police)	(included in Police)
10 Hazelton Street	88,113	22,812.071
83 Wilkinson	44,118	13,172.695
436 Hwy. 77	39,750	8,757.1416
90 Robson Road	185,907	1,584.249
435 Seacliff Drive East	6,537,752	396,508.097
Streetlights		
2233 Streetlights	1,541,247	**N/A**
Totals:	**12,394,153**	**882,369.5476**

2.3.1 Greenhouse Gas Emissions

Table 2.3.1 provides a breakdown of total GHG emission by facility for 2012.



Based on the municipality's total population of 28,403[(1)] people in 2011, the GHG emissions represent 0.0113 kg of CO_2e per person.

1. 2011 Census of Population, Statistic Canada.

2.4 Energy Supply

2.4.1 Electricity

Essex Power Corporation is the local distribution company for electricity serving all municipal facilities in the urban area of the Municipality. Hydro One is the local distribution company for electricity in the rural areas of the Municipality. Essex Power Corporation is owned by the Municipalities of Amherstburg, LaSalle, Leamington and Tecumseh.

The Municipality of Leamington has entered into an agreement with LAS, a subsidiary to AMO, to act as the supplier for electricity within the Municipality. LAS provides a fixed electrical price for each kwh of electricity.

2.4.2 Natural Gas

Union Gas is the local distribution company and supplier of natural gas for all Municipal buildings.

2.5 Stakeholders

2.5.1 Municipality of Leamington Council

Leamington Municipal Council is comprised of a Mayor, Deputy Mayor and five councilors, and plays crucial role in setting the framework for energy planning. Council will determine funding allocation aimed at energy conservation within the Municipality, and will approve energy conservation related policy.

2.5.2 Senior Management Team

The senior management team is responsible for creating the framework for energy conservation and demand management, building the corporate implementation strategy, and leading the organization towards achieving the identified goals and objectives.

2.5.3 Municipal Staff

All municipal staff will be expected to participate in the implementation of the Energy Management Plan. From the front line employee who can take simple steps like ensuring lights are shut off when lighting is unnecessary, to the Manger of Municipal facilities who will be tasked with developing building specific energy management strategies, every employee will be able to positively impact corporate energy reduction.

Section 3 – Goals and Objectives

3.1 Goals

The Municipality of Leamington CDMP has identified the following goals with regards to municipal energy management:

1) Reduce energy consumption
2) Reduce energy operating costs
3) Reduce greenhouse gas emissions (ghg)

Pursuing these goals will align the Municipality of Leamington's efforts with the intent of regulation 397/11 of the Green Energy Act as it relates to all Public Sector organizations identifying energy reduction opportunities and implementing energy reduction initiatives.

3.2 Objectives

Achieving the following CDMP objectives will allow the municipality to attain the identified goals:

1) Gain in depth understanding of corporate energy consumption through detailed analysis (where, why, how, when, etc).
2) Create staff awareness of energy management through education and outreach.
3) Improve energy control mechanisms to reduce unnecessary energy consumption.
4) Update inefficient infrastructure where there is an acceptable business case to do so.

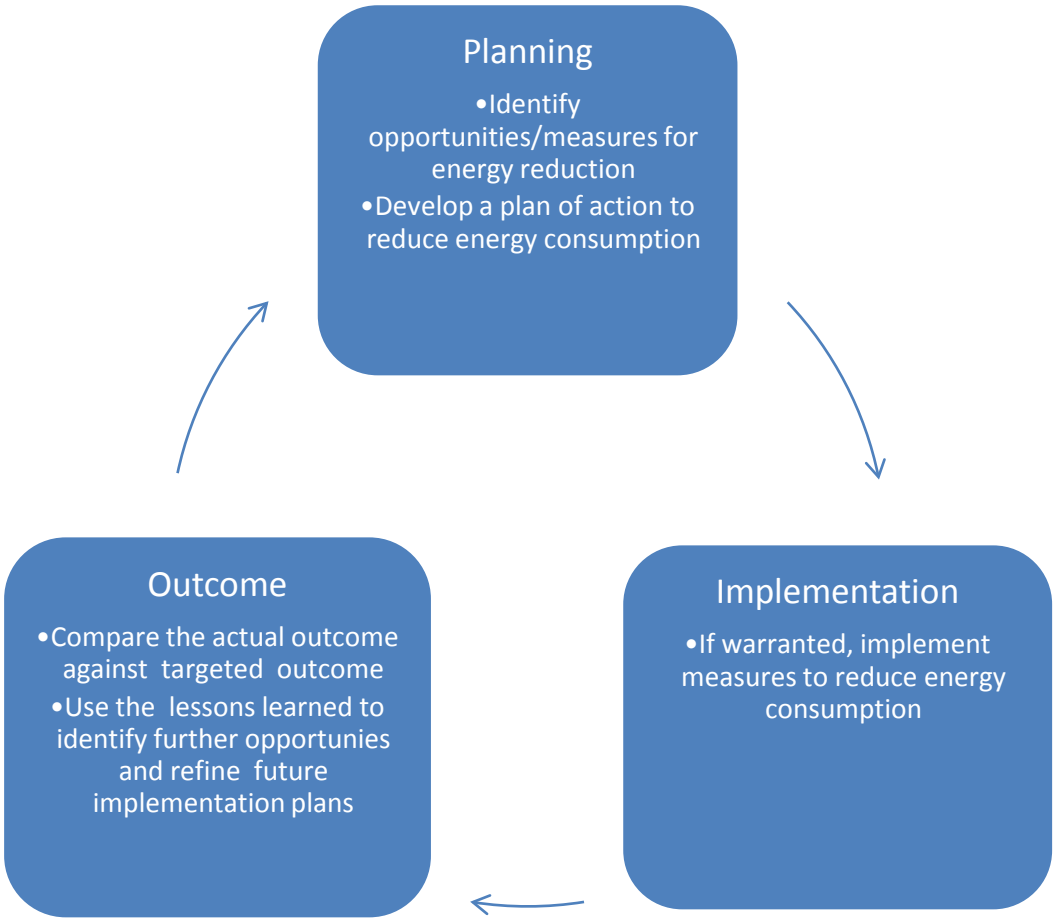
3.3 Process

The Municipality will undertake a simple yet effective method of identifying and implementing key improvements in its operations that will reduce energy use, reduce operating costs, and reduce greenhouse gas emissions. The process is made up of several steps that when performed in order, will assist in identifying the effectiveness of the energy reduction effort.

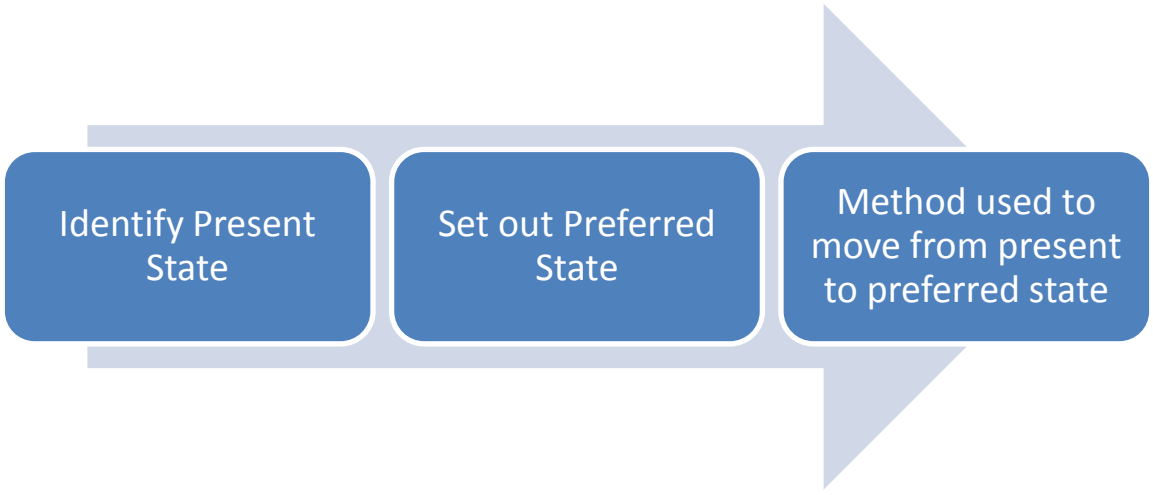
This process will assist in preventing the implementation of ineffective measures and avoid unnecessary use of resources.

The process summary is described in Table 3.3 on the following page.

Table 3.3



There are 3 key steps in the planning process to improve the likelihood of a measure being successful and contributing toward achieving the desired corporate goals. These are to: identify the present state, set out the preferred state, and identify the method to me used to move to the preferred state.



Each proposed measure will include a summary of the present state and some historical data on why the present state exists.

Each proposed measure will include a preferred state specifying where the Municipality would envision itself after the proposed measure was enacted within the timeframe specified by the measure.

Each proposed measure will also include a method used by the municipality to get from a present state to a preferred state for the measure.

Section 4 - Energy Conservation Measures

4.1 Train Staff in Energy Management Principles

4.1.1 Present State

The Municipality of Leamington currently does not provide energy management training to staff, and does not have policies, plans or procedures relating specifically to energy management.

In the past, commodities such as electricity and natural gas were fairly inexpensive and made up a small portion of the municipal budget. Energy efficiency was not a high priority since most municipal infrastructure was small and fairly efficient for its intended use. This is no longer the case.

With the introduction of time of use billing, substantial increases in electricity costs in general, and larger infrastructure like recreation facilities and pollution control centres, municipalities must find cheaper and more cost effective methods to consume energy.

4.1.2 Preferred State

Energy awareness and energy management is promoted throughout the corporation. Energy conservation is an integral part of corporate decision making.

4.1.3 Present State to Preferred State

Energy management training will be implemented corporately. This training will assist staff in understanding the importance of energy conservation and efficiency, and will provide strategies on how each staff member can become part of the energy reduction efforts.

Training will assist in developing new methods to conserve energy by:

- Developing an awareness of the energy being used in facilities and the equipment in those facilities
- Providing staff with knowledge to develop strategies to effectively conserve energy
- Developing an overall positive and proactive employee approach to energy conservation

Training and education would be initially focused on staff controlling infrastructure that has the highest demand for energy use, such as the Pollution Control Centre and the Leamington Kinsmen Recreation Complex, and expand to include the education of all members of the organization.

Energy Management Training is expected to be ongoing, to be incorporated into other corporate training initiatives, and have a minimal cost implication. It is anticipated that the general staff training and awareness and the promotion of energy management will result in net annual energy reduction.

4.2 Improve Building Controls, Consolidate Building Automation Systems

4.2.1 Present State

The Municipality of Leamington's building inventory varies significantly with regards to the level of building automation for heating, ventilation, and air conditioning controls. Controls range from state of the art fully automated systems at the new Municipal Building, to simple wall mounted stand alone thermostats in other facilities.

4.2.2 Preferred State

Building controls are consolidated on one controls system at key facilities to better control and manage energy use while maintaining desired outcome. Among other things, this would include; controlled occupancy sensors for lighting, automatic temperature setbacks, alarm notification for system operation malfunctions, and strategically designed equipment operation to reduce energy consumption.

Any new building owned or operated by the Municipality that has a significant energy management component will include building automation controls. Automated controls are installed on existing buildings and equipment where there is an acceptable return on investment to do so.

4.2.3 Present State to Preferred State

The process of moving to the preferred state with regards to HVAC and lighting controls will involve consideration of initiatives ranging from smaller scale process improvements and systems consolidation, to the possibility of installing building controls where none currently exist. Every building will be reviewed to identify the feasibility of adding or consolidating building automation controls.

This conservation measure will be fully implemented over the next 5 years. Smaller scale inexpensive initiatives will be completed over the 5 year period. Justifiable projects requiring large capital investment will be planned as funding permits.

4.3 Conduct Energy Audits on Municipal Facilities

The primary purpose of an energy audit is to analyze facility energy usage to answer the following questions:

- Where is energy is consumed?
- Why is the energy being consumed?
- How it is being consumed?
- How much energy can be saved by modifying or replacing existing operating process or procedure?
- How much energy can be saved by modifying or replacing existing infrastructure?

4.3.1 Present State

The Municipality of Leamington has not conducted energy audits on municipal facilities. Understanding of facility energy consumption is limited to information obtained through monthly utility invoicing.

4.3.2 Preferred State

The municipality has a detailed understanding of where, why and how energy is being consumed at all facilities. With the knowledge, processes, procedures and controls have been modified to maximize energy conservation.

The ideal situation at each location would be one of the most efficient and logical use of energy that can be achieved. While some processes cannot be avoided, merely changing the time that the process occurs or how the process occurs can greatly impact the use of energy.

4.3.3 Present State to Preferred State

Energy audits would begin by auditing facilities with the greatest energy use. As over 80% of greenhouse gas emissions measured in this report are generated by the Leamington Kinsmen Recreation Complex (34%), and the Pollution Control Centre (47%), these two facilities will be audited first.

Detailed energy analysis will require real time data to be collected and inputted into an Energy Management System for analysis. With this data, energy consumption can be profiled against facility operations and equipment demands. Strategies can then be devised to curb demand where feasible.

This conservation measure will be fully implemented over the next 3 years, will lead to a better understanding of facility energy usage, and will identify operational and capital energy conservation initiatives.

4.4 Replace Municipal Streetlights with Light Emitting Diode (LED) Technology

4.4.1 Present State

The Municipality of Leamington has approximately 2250 streetlights in operation including urban and rural areas. Primarily, existing streetlights consist of High Pressure Sodium (HPS) technology with wattage ranging from 100w to 1000w. Combined, these streetlights consume approximately 1.5 million kWh of electricity each year. In the 2013 fiscal year, the Municipality spent $242,000 in electricity to power those lights and a further $103,000 in the maintenance costs.

4.4.2 Preferred State

The Municipality of Leamington uses advanced, modern, and energy efficient technology to provide street lighting. New technology such as LED or inductive lighting can produce energy savings of 50% to 70% when compared to older technology such as HPS. LED fixtures have a much longer life therefore reducing maintenance and replacement costs. Annual operating costs are reduced by 50% or greater.

4.4.3 Present State to Preferred State

The municipality is currently undertaking a detailed mapping of street light infrastructure in preparation of an LED streetlight conversion procurement initiative. A pilot project for the LED install has already been completed at the Erie Street South and Oak Street intersection and has been performing well.

The streetlight conversion initiative is currently in the 5 year capital plan to occur in 2015, recognizing this is subject to annual capital budget approval. The streetlight conversion is expected to have a total project cost of $1,300,000, energy savings of $150,000 per year, and a return on investment of 5-6 Years.

4.5 Explore Renewable Energy Technologies

4.5.1 Present State

The Municipality currently has 2 solar powered streetlights located on a new section of trail in the urban area, as well as solar powered lighting on 4 newly installed municipal bus shelters. Solar lighting is considered when reviewing lighting demands for new infrastructure. See Figure 1.

Figure 1

4.5.2 Preferred State

Solar lighting and other renewable energy technologies are considered when planning the municipal infrastructure projects. When there is an acceptable business case or practicality to

doing so, renewable energy initiatives are undertaken. One such example is installing solar streetlights at rural road intersections.

4.5.3 Present State to Preferred State

Renewable energy projects continue to be implemented in various aspects of municipal infrastructure development and renewal. All infrastructure projects consider renewable energy components, more opportunities are identified where renewable energy is a viable alternative to traditional energy sources, and are thus implemented.

4.6 Consolidate Corporate Energy Management Responsibilities

4.6.1 Present State

Managing energy consumption and the resulting energy costs are currently the responsibility of the municipal department where the energy is being consumed. While the municipality does have consolidated energy procurement contracts, that addresses only the per unit cost, and not the quantity and resulting overall cost of energy consumption. Energy management and cost management responsibilities are distributed over multiple positions in multiple departments.

4.6.2 Preferred State

Corporate energy management responsibilities are consolidated under one managerial position who has the training, education and experience to develop, implement, and maintain corporate energy management plans. The result is strategically planned energy consumption that is measured, analyzed and adapted. Infrastructure renewal and rehabilitation projects across the corporation are reviewed from an energy management perspective.

4.6.3 Present State to Preferred State

A recently approved organizational review has redistributed staffing resources and consolidated corporate energy management responsibilities under the newly created position of ‘Supervisor of Fleet and Facilities’. This position will be recruited and hired in 2014. This dedicated resource will be responsible for all aspects of corporate energy management and will work with all departments to develop energy management strategies.

4.7 Replace Roof and Improve Insulation over Municipal Pool

4.7.1 Present State

The roofing system over the pool at the Leamington Kinsmen Recreation Complex is in need of replacement. One of the most significant impacts of the roof failure is the damage to the associated insulation from previous leaking episodes. While the roof has been repaired and water no longer penetrating the roof system, the insulation has been damaged and the resistance properties of the insulation (R-Value) has been diminished significantly. Given the high energy demand to heat a pool of this size and manage humidity within the pool area, the lack of insulation is causing significant excess energy consumption.

4.7.2 Preferred State

The roofing system is updated including appropriately designed insulation. Energy is saved through improved resistance to energy loss.

4.7.3 Present State to Preferred State

The municipality is currently working with a local consultant to design the roofing system and insulation improvements.

The roof replacement and improved insulation is currently in the 5 year capital plan to occur in two phases over 2016-2017, recognizing this is subject to annual capital budget approval. The roof replacement and insulation improvements are expected to have a total project cost of $600,000. Improved insulation is expected to reduce energy consumption for heating the pool area by 10% or greater.

Report Authored by:

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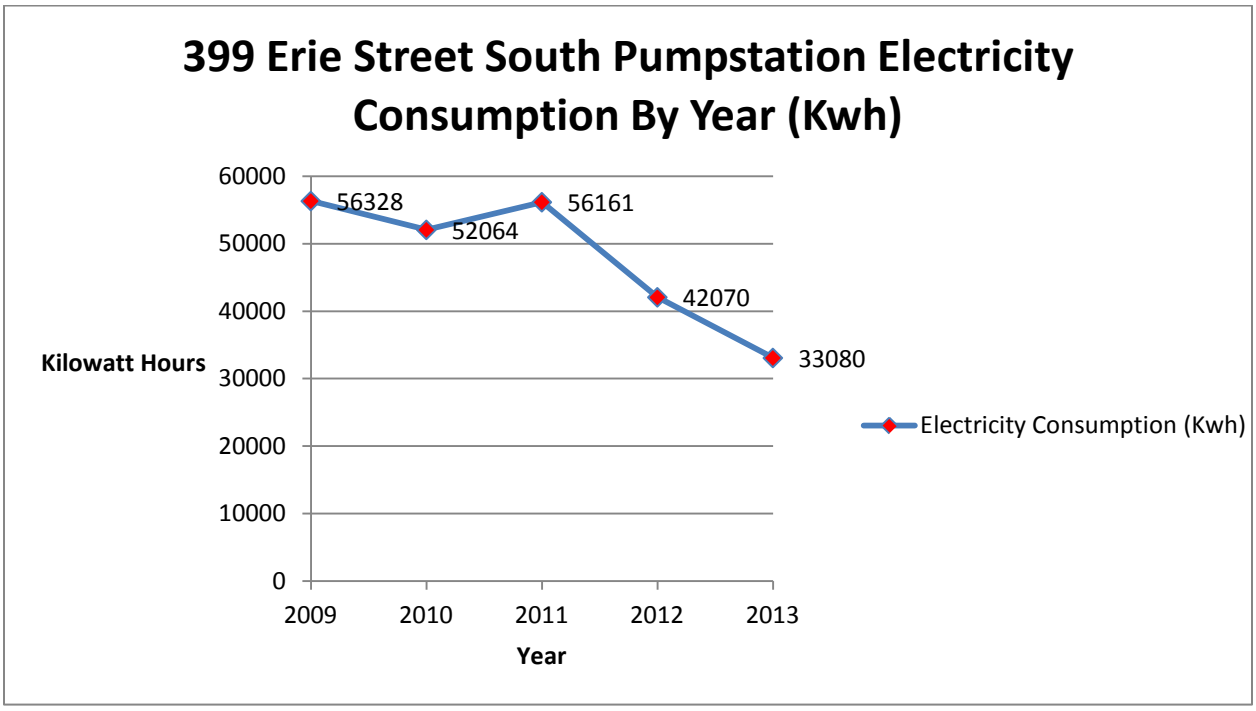
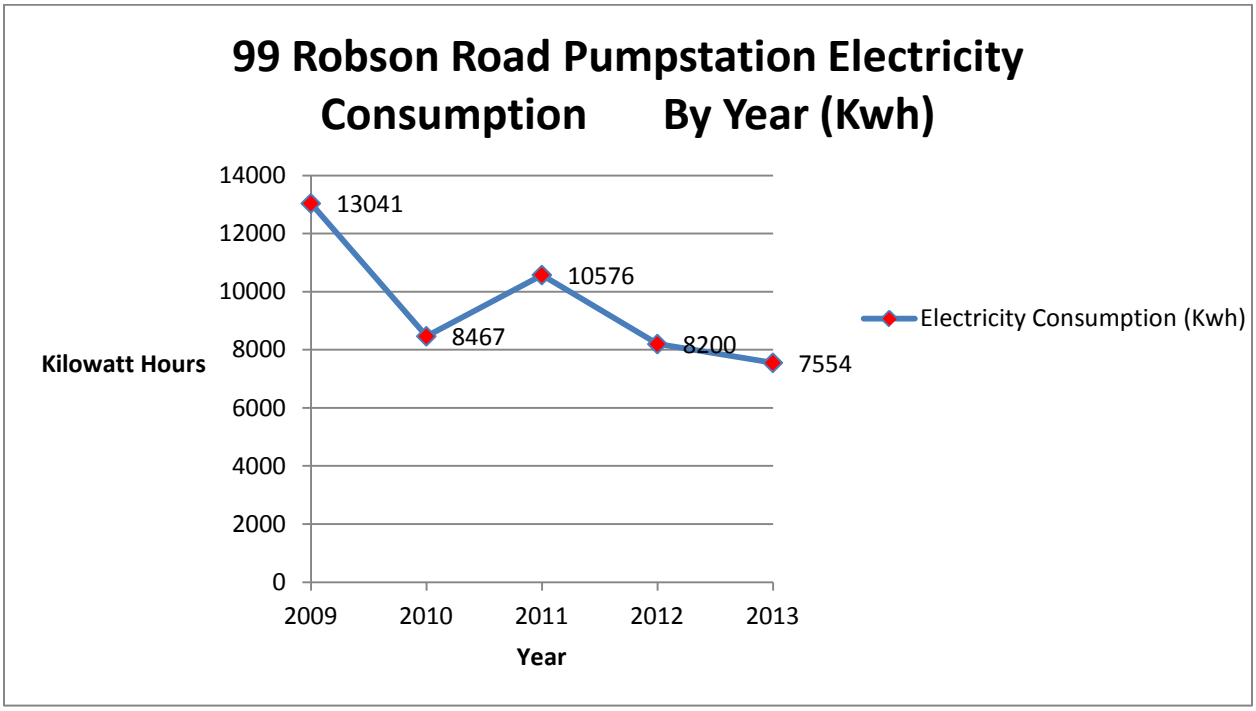
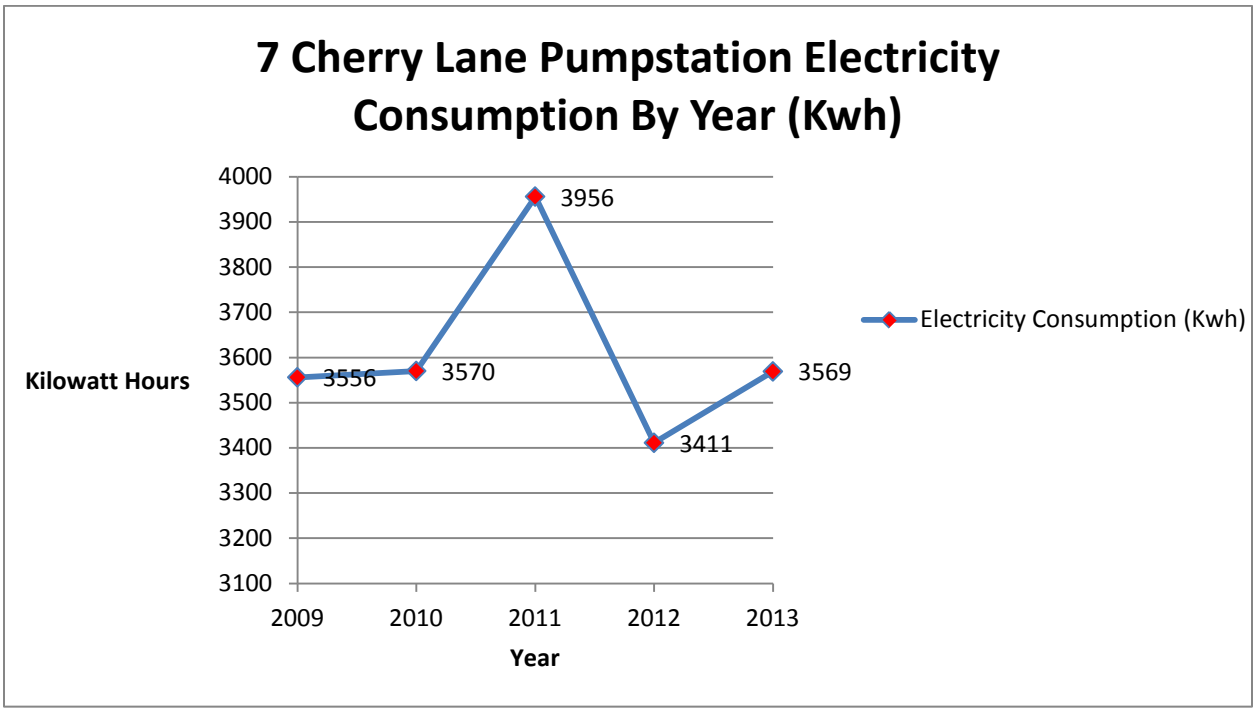
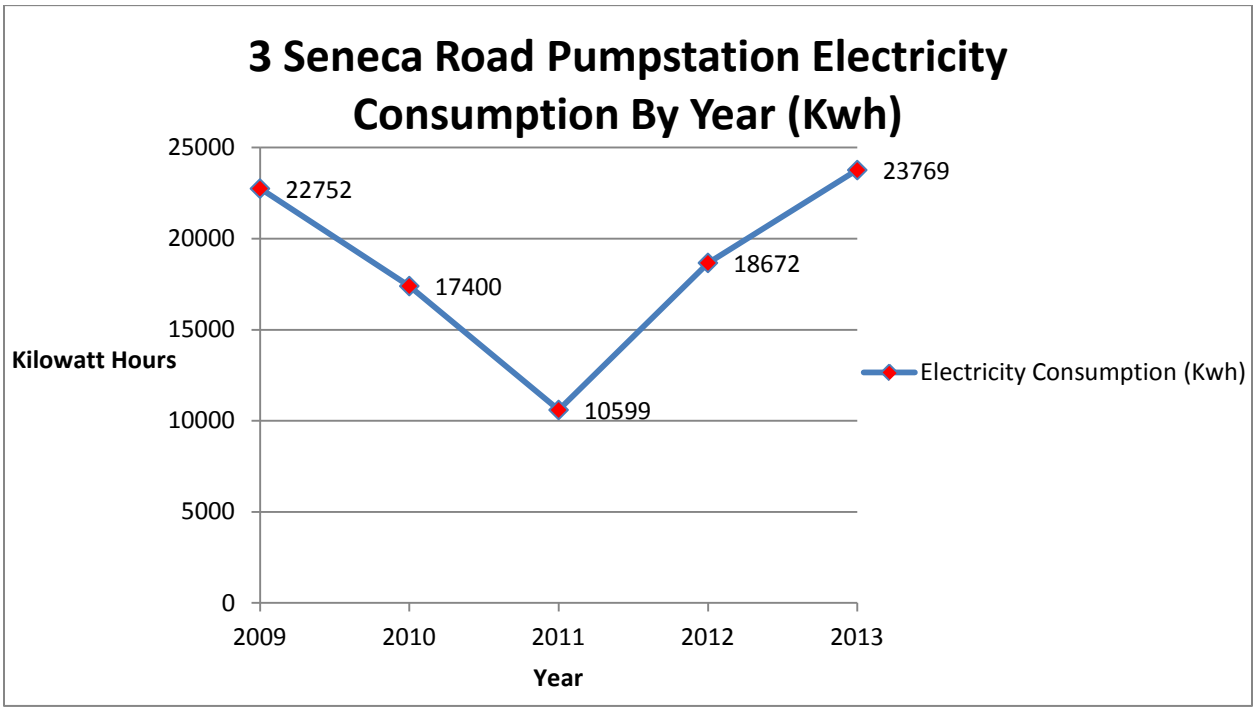
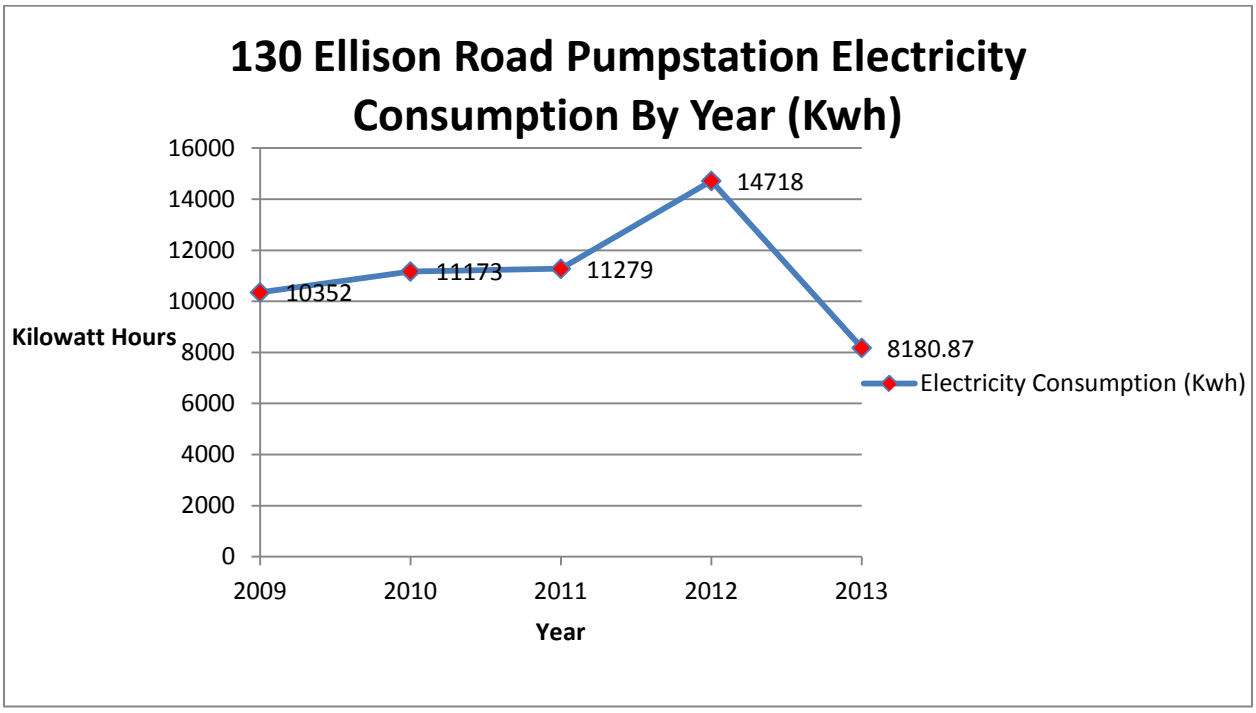
Appendix A: 2009 to 2013 Historical Data - Electricity Consumption

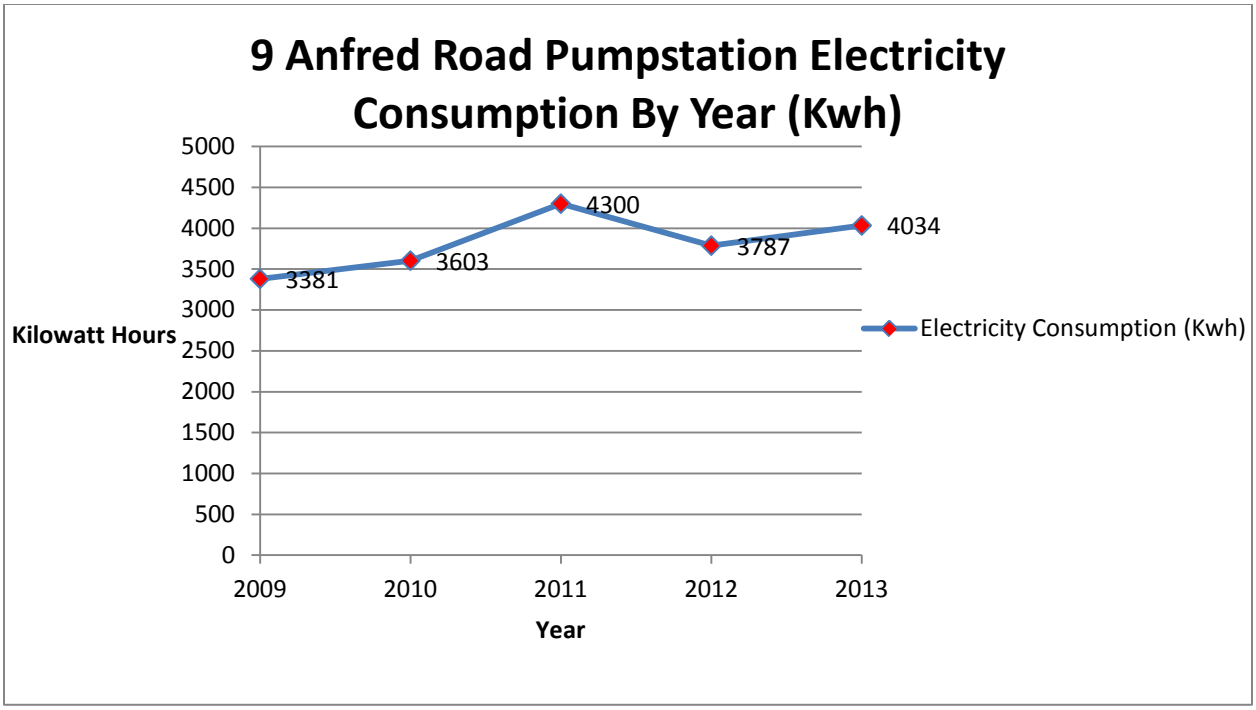


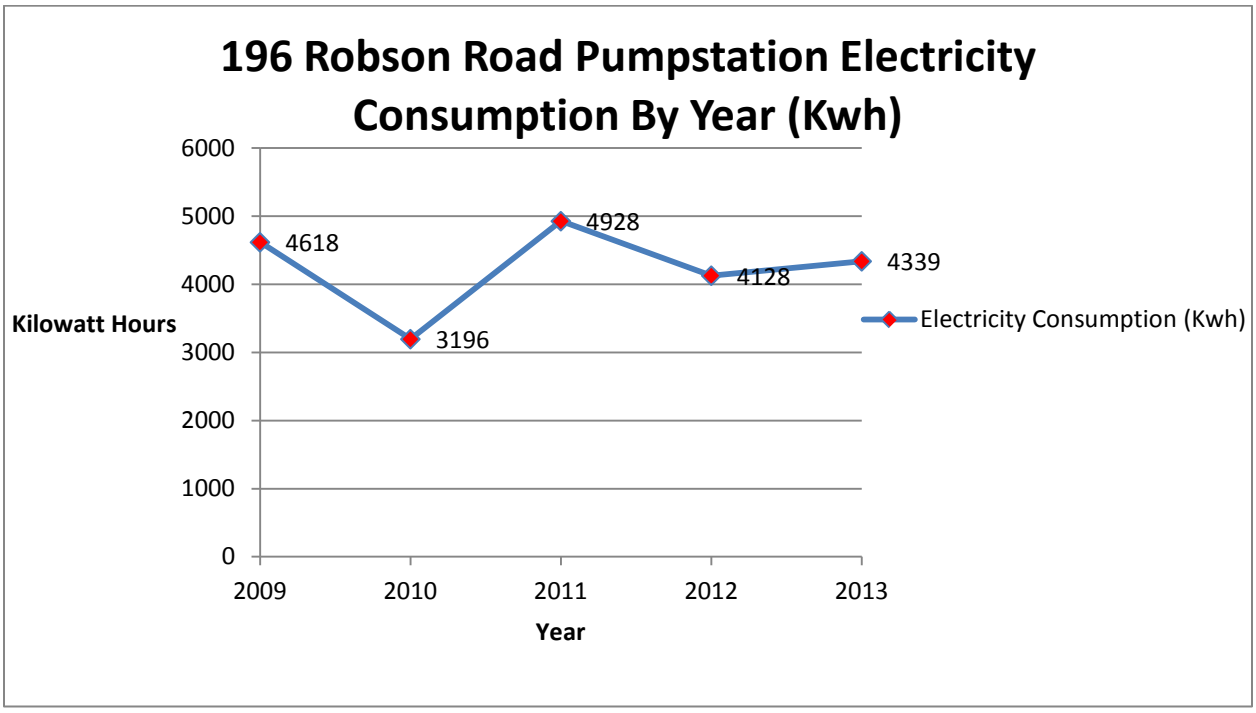


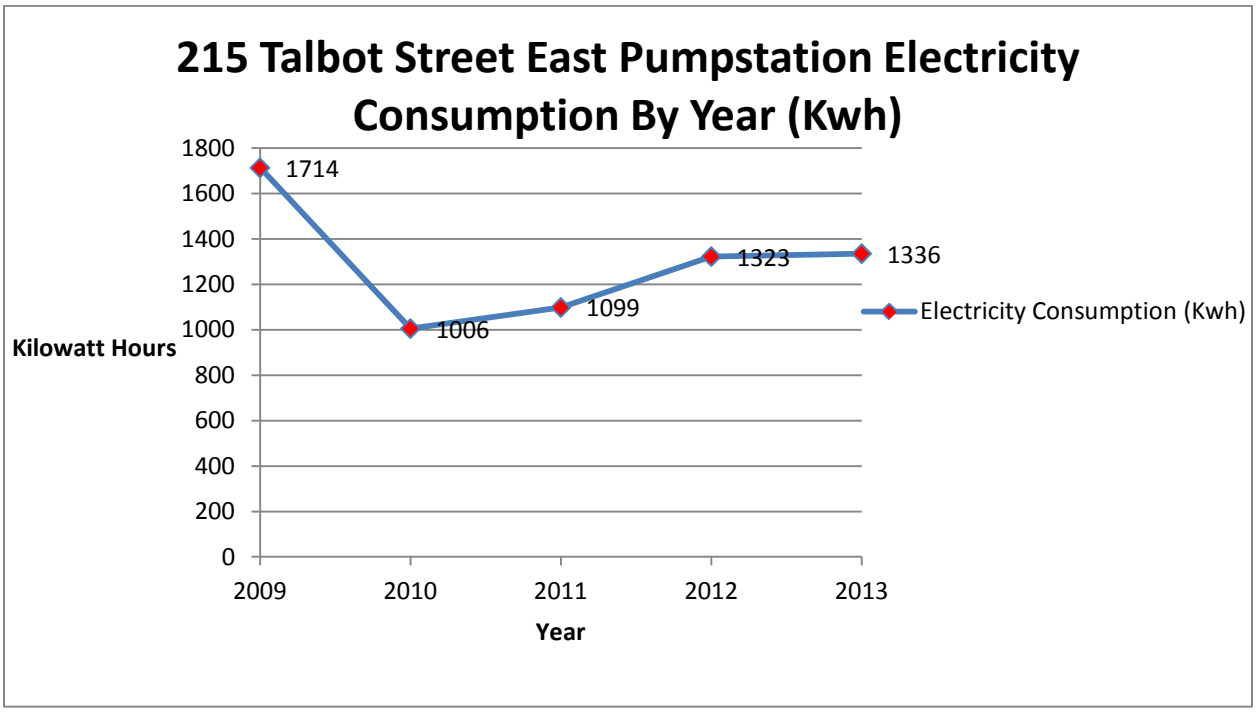

7 Cherry Lane Pumpstation Electricity Consumption By Year (Kwh)
Kilowatt Hours
4000
3900
3800
3700
3600
3500
3400
3300
3200
3100
3556
3570
3956
3411
3569
2009
2010
2011
2012
2013
Year
Electricity Consumption (Kwh)

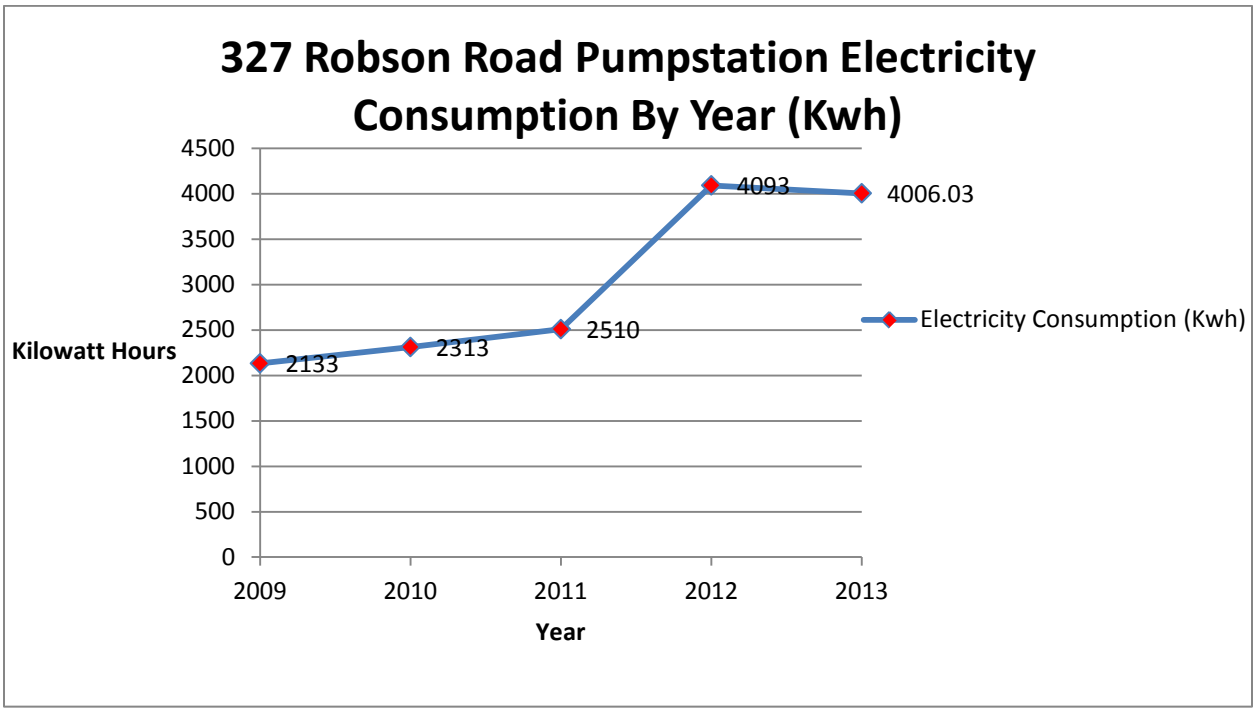

3 Seneca Road Pumpstation Electricity Consumption By Year (Kwh)
Kilowatt Hours
25000
20000
15000
10000
5000
0
22752
17400
10599
18672
23769
2009
2010
2011
2012
2013
Year
Electricity Consumption (Kwh)

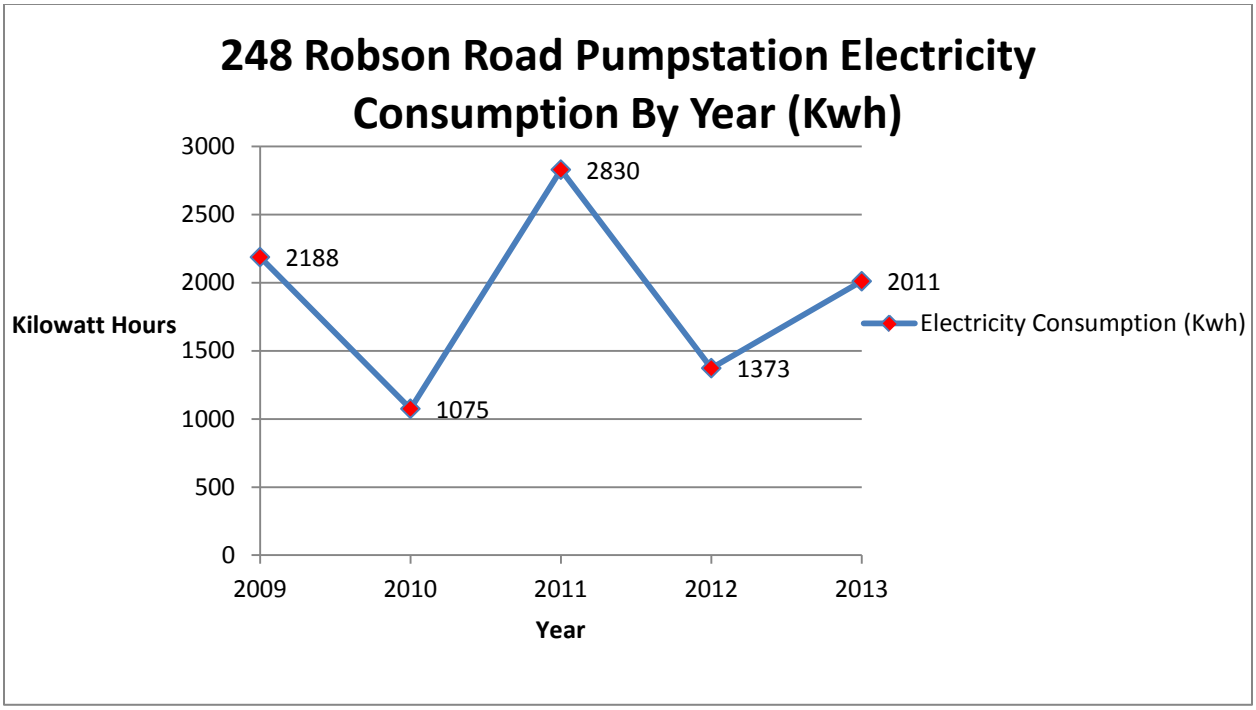

130 Ellison Road Pumpstation Electricity Consumption By Year (Kwh)
16000
14000
12000
10000
8000
6000
4000
2000
0
Kilowatt Hours
10352
11173
11279
14718
8180.87
2009
2010
2011
2012
2013
Year
Electricity Consumption (Kwh)

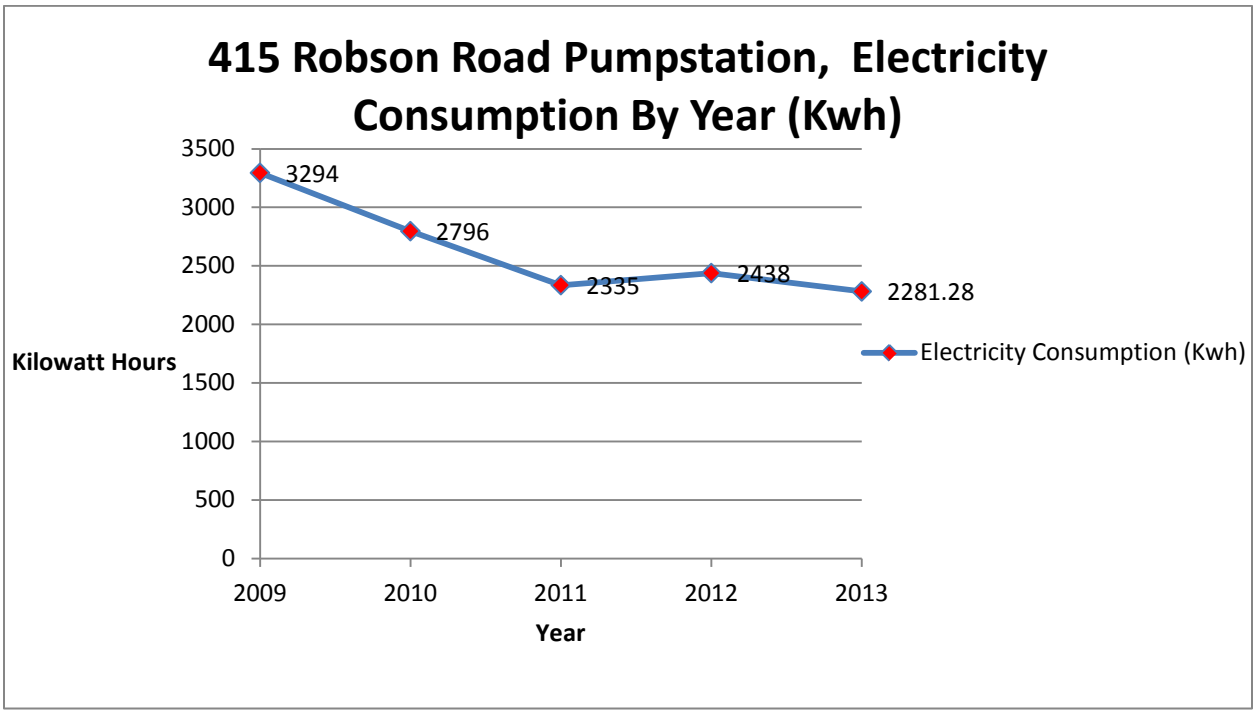

9 Anfred Road Pumpstation Electricity Consumption By Year (Kwh)
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Kilowatt Hours
3381
3603
4300
3787
4034
2009
2010
2011
2012
2013
Year
Electricity Consumption (Kwh)

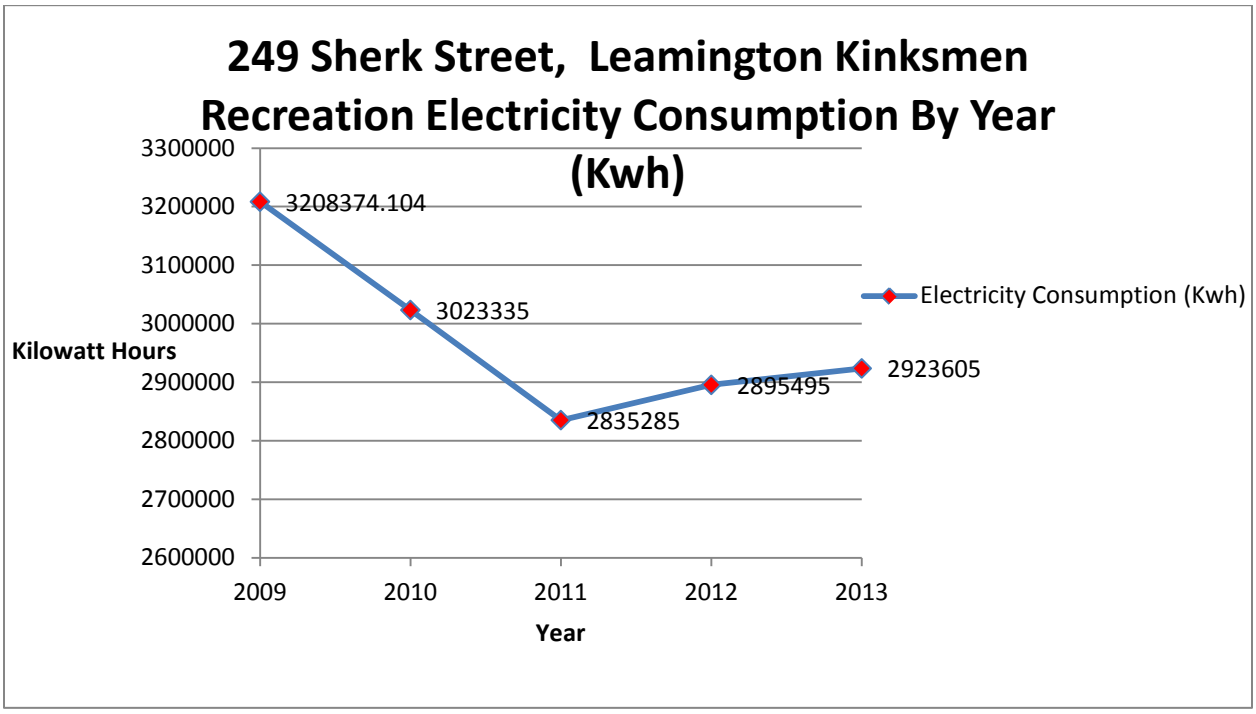

196 Robson Road Pumpstation Electricity Consumption By Year (Kwh)
Kilowatt Hours
6000
5000
4000
3000
2000
1000
0
4618
3196
4928
4128
4339
2009
2010
2011
2012
2013
Year
Electricity Consumption (Kwh)

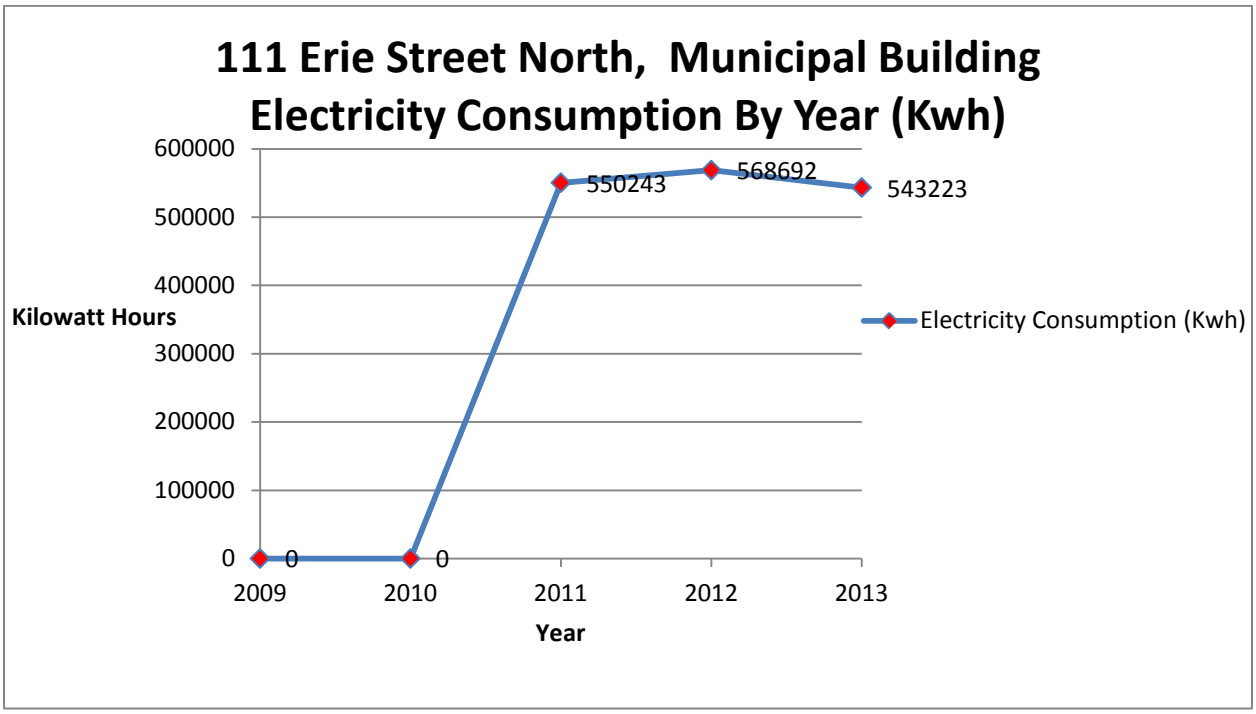

215 Talbot Street East Pumpstation Electricity Consumption By Year (Kwh)
Kilowatt Hours
1800
1600
1400
1200
1000
800
600
400
200
0
1714
1006
1099
1323
1336
2009
2010
2011
2012
2013
Year
Electricity Consumption (Kwh)

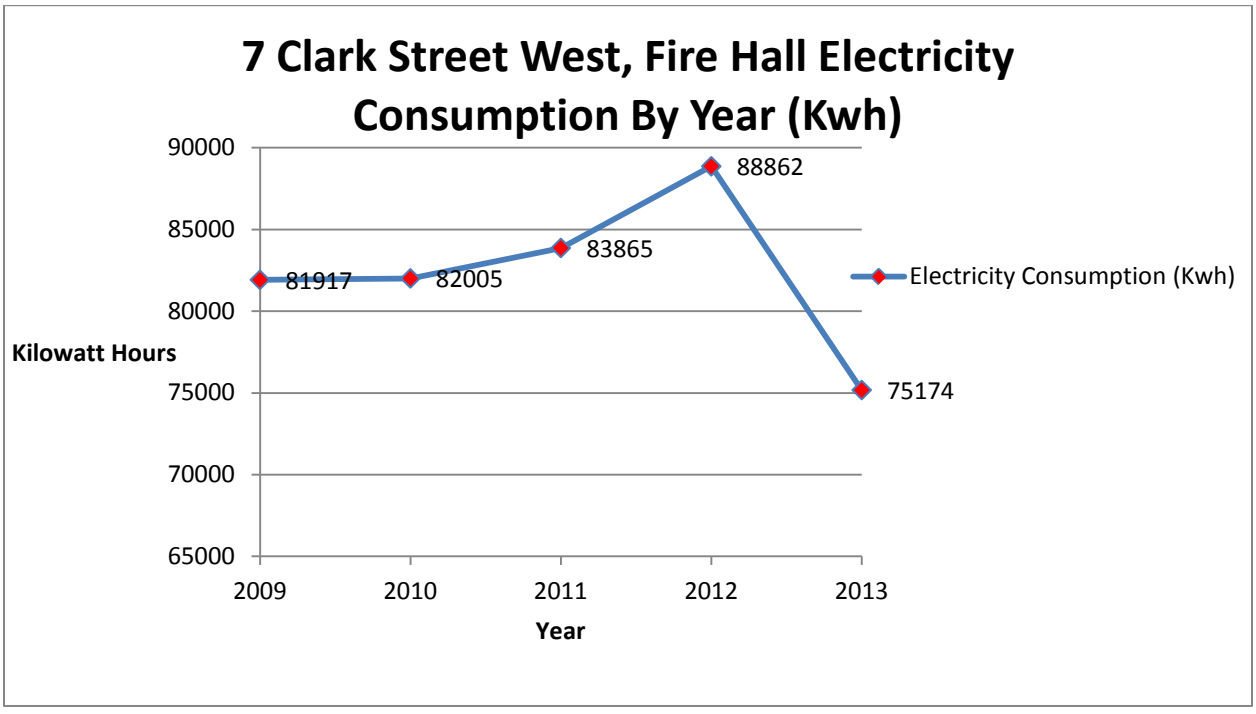

327 Robson Road Pumpstation Electricity Consumption By Year (Kwh)
Kilowatt Hours
4500
4000
3500
3000
2500
2000
1500
1000
500
0
2133
2313
2510
4093
4006.03
2009
2010
2011
2012
2013
Year
Electricity Consumption (Kwh)

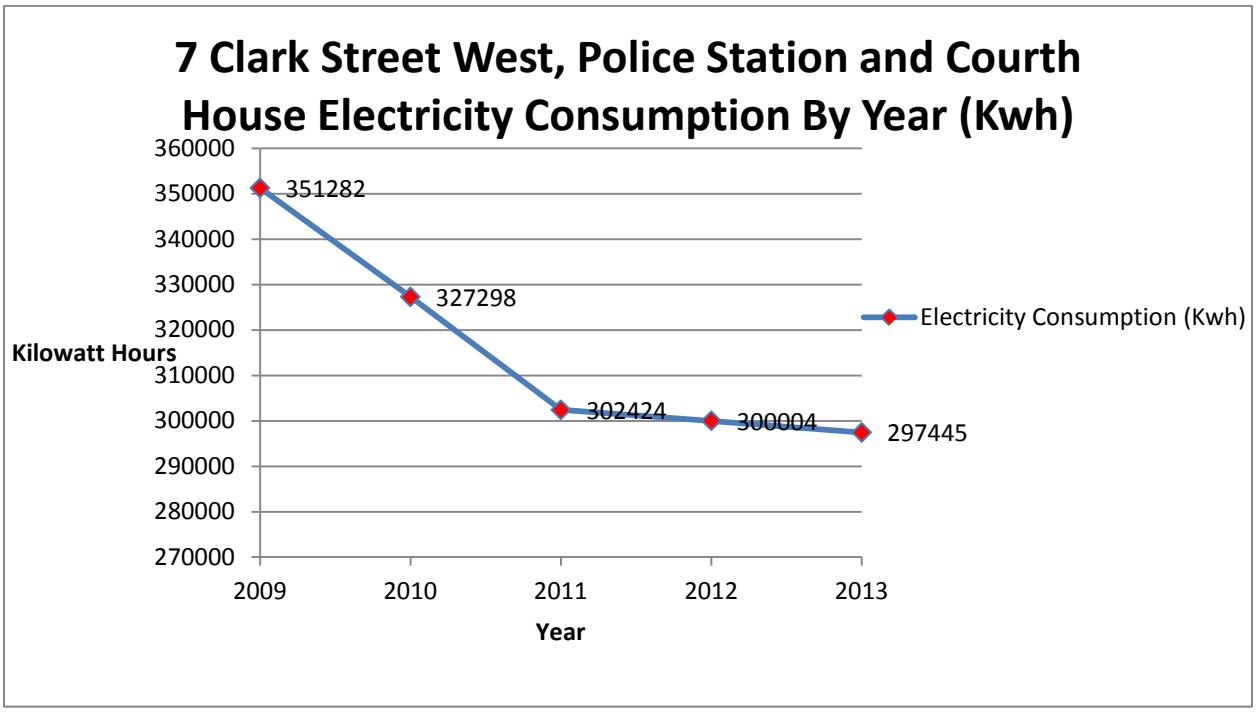

248 Robson Road Pumpstation Electricity Consumption By Year (Kwh)
Kilowatt Hours
3000
2500
2000
1500
1000
500
0
2188
1075
2830
1373
2011
2009
2010
2011
2012
2013
Year
Electricity Consumption (Kwh)

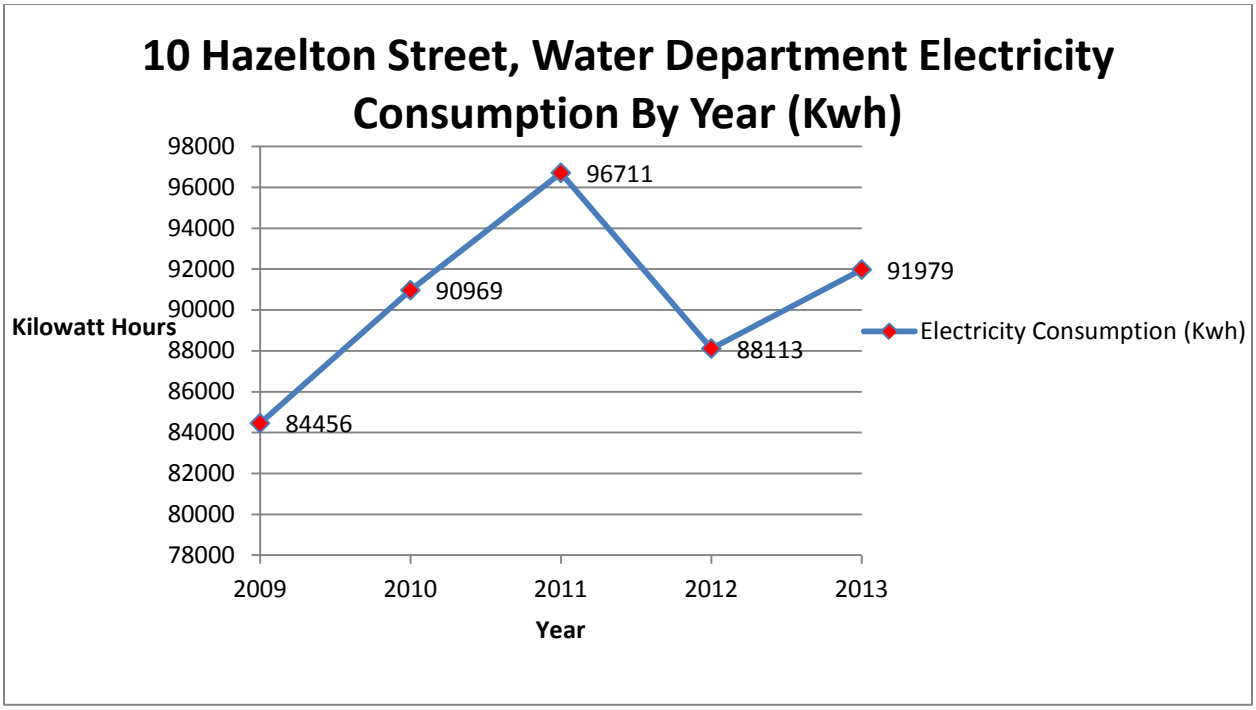

415 Robson Road Pumpstation, Electricity Consumption By Year (Kwh)
3500
3000
2500
2000
1500
1000
500
0
Kilowatt Hours
3294
2796
2335
2438
2281.28
2009
2010
2011
2012
2013
Year
Electricity Consumption (Kwh)

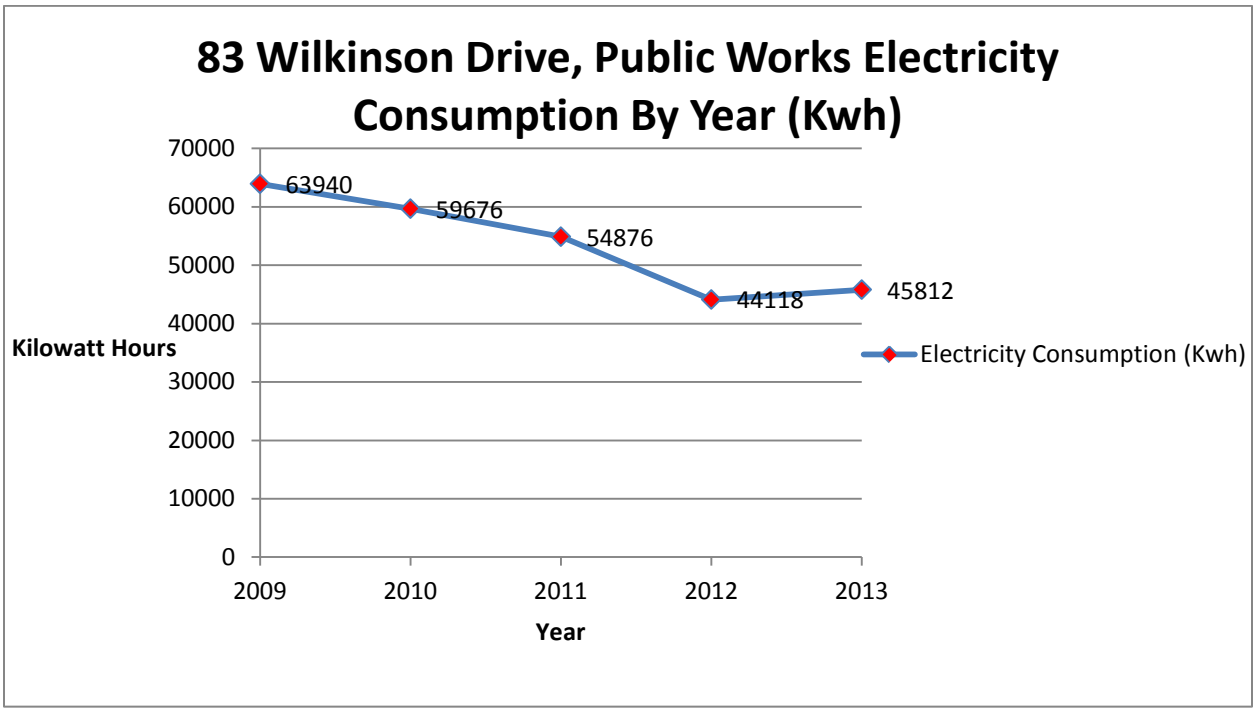

249 Sherk Street, Leamington Kinksmen Recreation Electricity Consumption By Year (Kwh)
3300000
3200000
3100000
3000000
2900000
2800000
2700000
2600000
Kilowatt Hours
3208374.104
3023335
2835285
2895495
2923605
2009
2010
2011
2012
2013
Year
Electricity Consumption (Kwh)

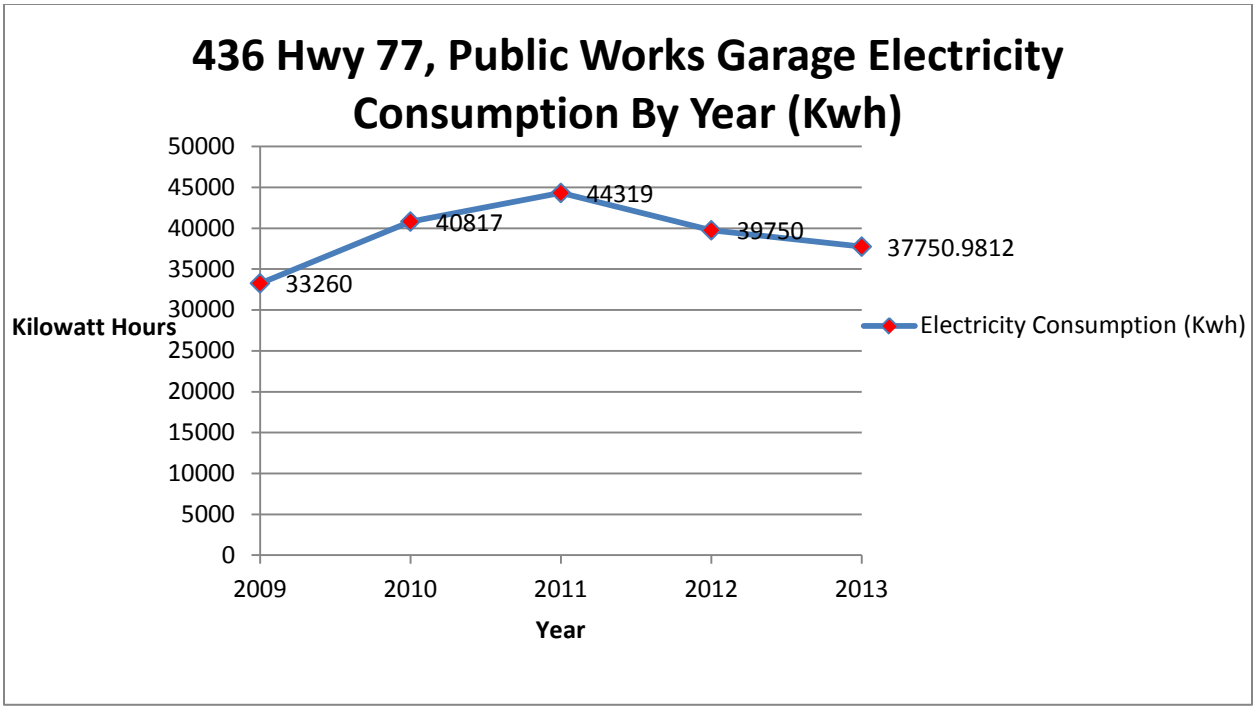

111 Erie Street North, Municipal Building
Electricity Consumption By Year (Kwh)
600000
500000
400000
300000
200000
100000
0
Kilowatt Hours
0
0
550243
568692
543223
2009
2010
2011
2012
2013
Year
Electricity Consumption (Kwh)

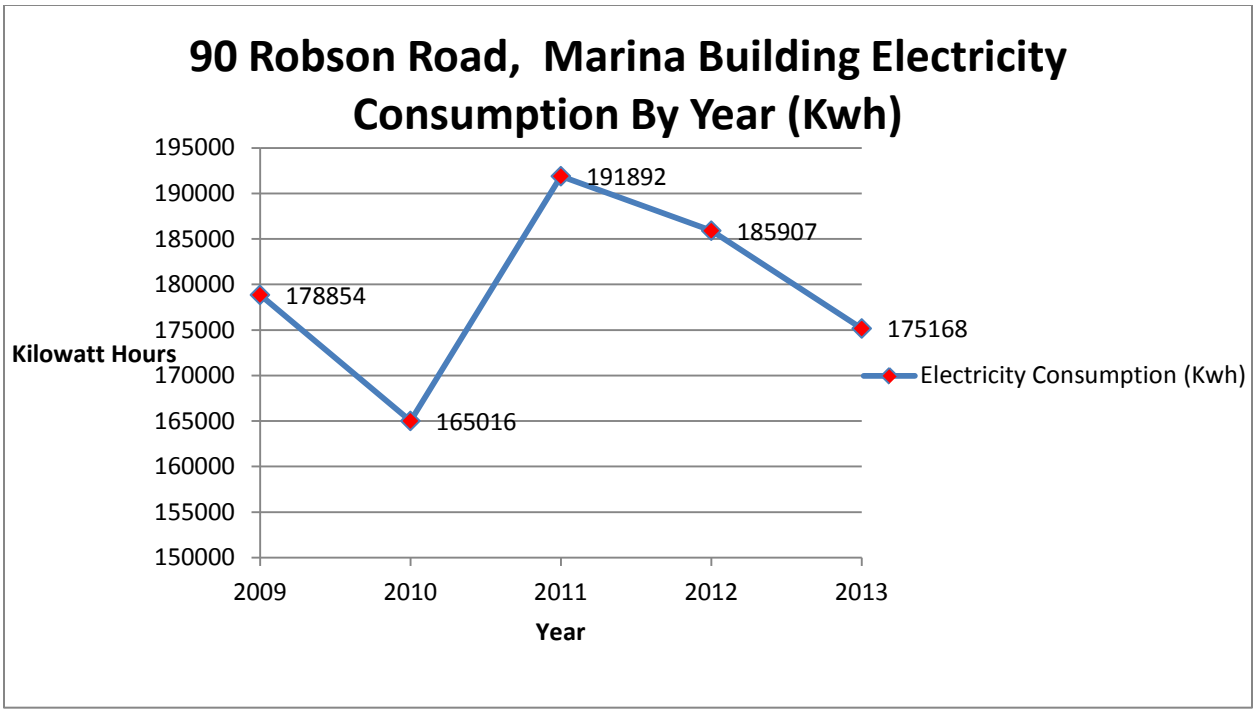

7 Clark Street West, Fire Hall Electricity
Consumption By Year (Kwh)
90000
85000
80000
75000
70000
65000
Kilowatt Hours
81917
82005
83865
88862
75174
2009
2010
2011
2012
2013
Year
Electricity Consumption (Kwh)

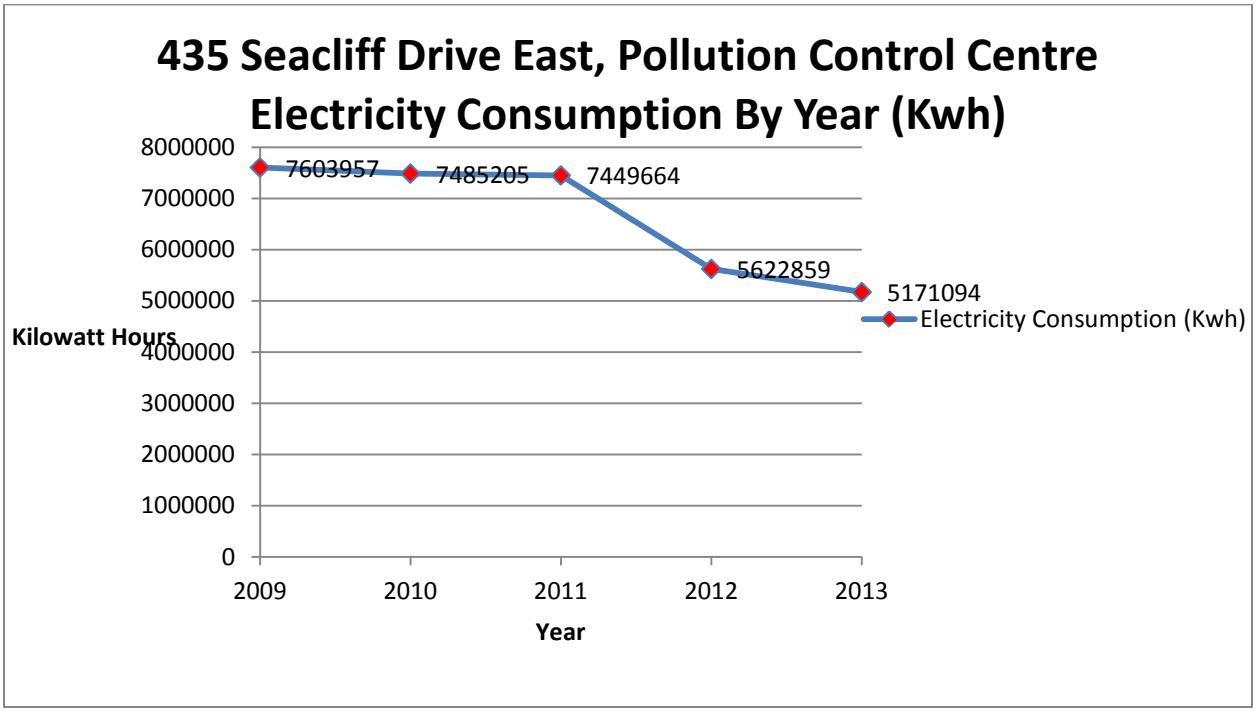

7 Clark Street West, Police Station and Courth House Electricity Consumption By Year (Kwh)
360000
350000
340000
330000
320000
310000
300000
290000
280000
270000
Kilowatt Hours
351282
327298
302424
300004
297445
2009
2010
2011
2012
2013
Year
Electricity Consumption (Kwh)

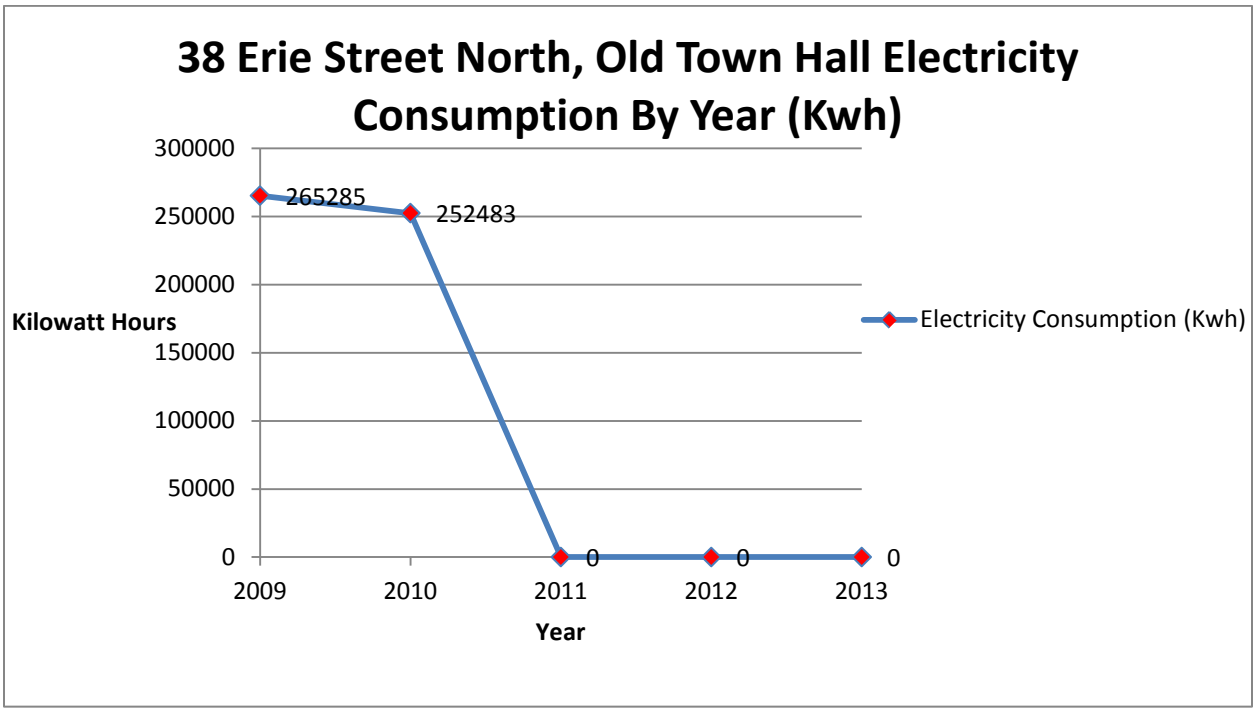

10 Hazelton Street, Water Department Electricity Consumption By Year (Kwh)
98000
96000
94000
92000
90000
88000
86000
84000
82000
80000
78000
Kilowatt Hours
84456
90969
96711
88113
91979
2009
2010
2011
2012
2013
Year
Electricity Consumption (Kwh)


83 Wilkinson Drive, Public Works Electricity Consumption By Year (Kwh)
70000
60000
50000
40000
30000
20000
10000
0
Kilowatt Hours
63940
59676
54876
44118
45812
2009
2010
2011
2012
2013
Year
Electricity Consumption (Kwh)

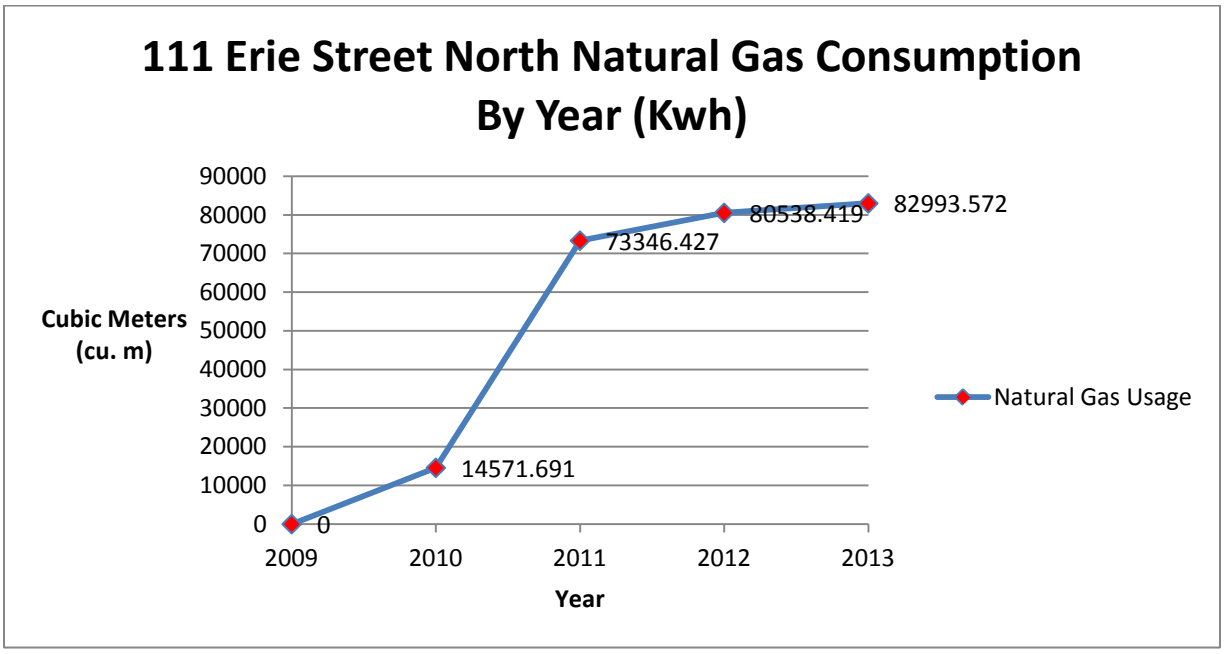

436 Hwy 77, Public Works Garage Electricity Consumption By Year (Kwh)
50000
45000
40000
35000
30000
25000
20000
15000
10000
5000
0
Kilowatt Hours
33260
40817
44319
39750
37750.9812
2009
2010
2011
2012
2013
Year
Electricity Consumption (Kwh)

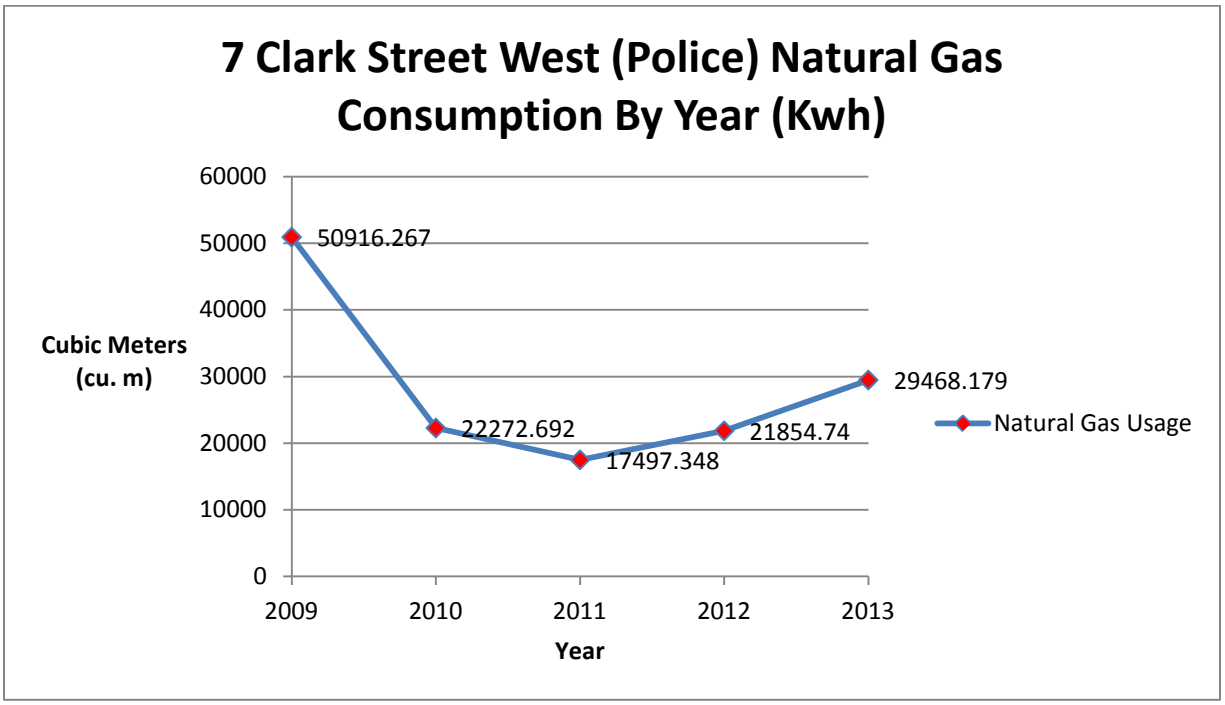

90 Robson Road, Marina Building Electricity Consumption By Year (Kwh)
195000
190000
185000
180000
175000
170000
165000
160000
155000
150000
Kilowatt Hours
178854
165016
191892
185907
175168
2009
2010
2011
2012
2013
Year
Electricity Consumption (Kwh)

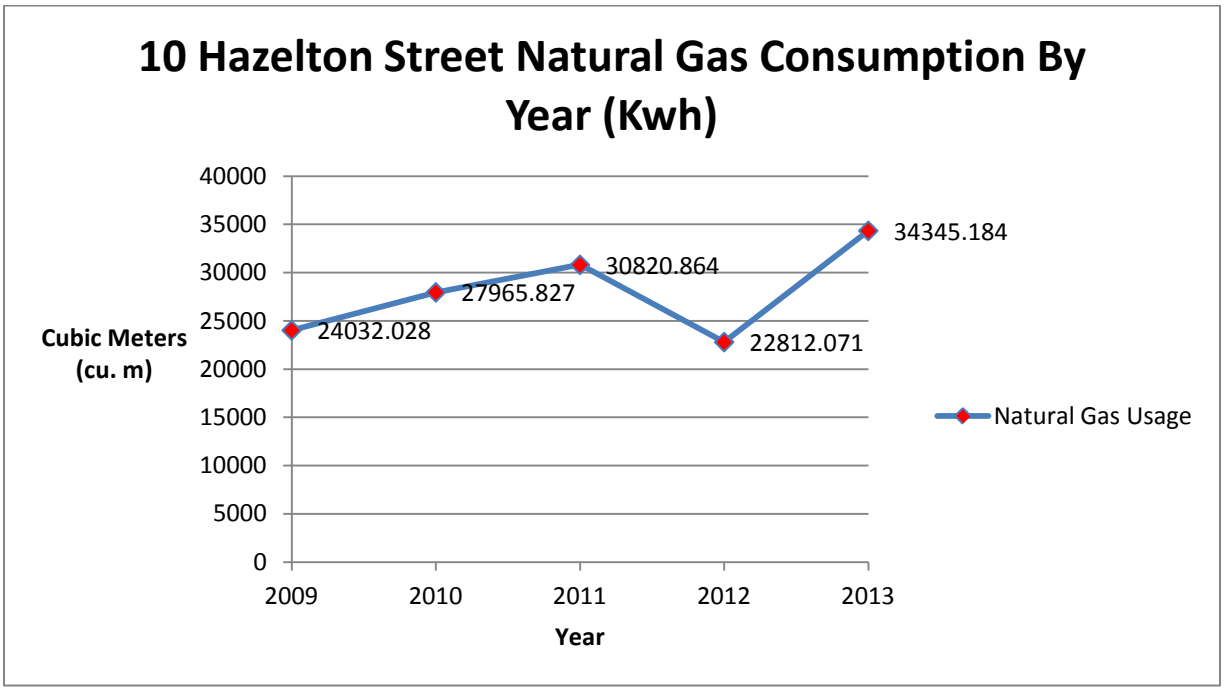

435 Seacliff Drive East, Pollution Control Centre Electricity Consumption By Year (Kwh)
8000000
7000000
6000000
5000000
4000000
3000000
2000000
1000000
0
Kilowatt Hours
7603957
7485205
7449664
5622859
5171094
2009
2010
2011
2012
2013
Year
Electricity Consumption (Kwh)

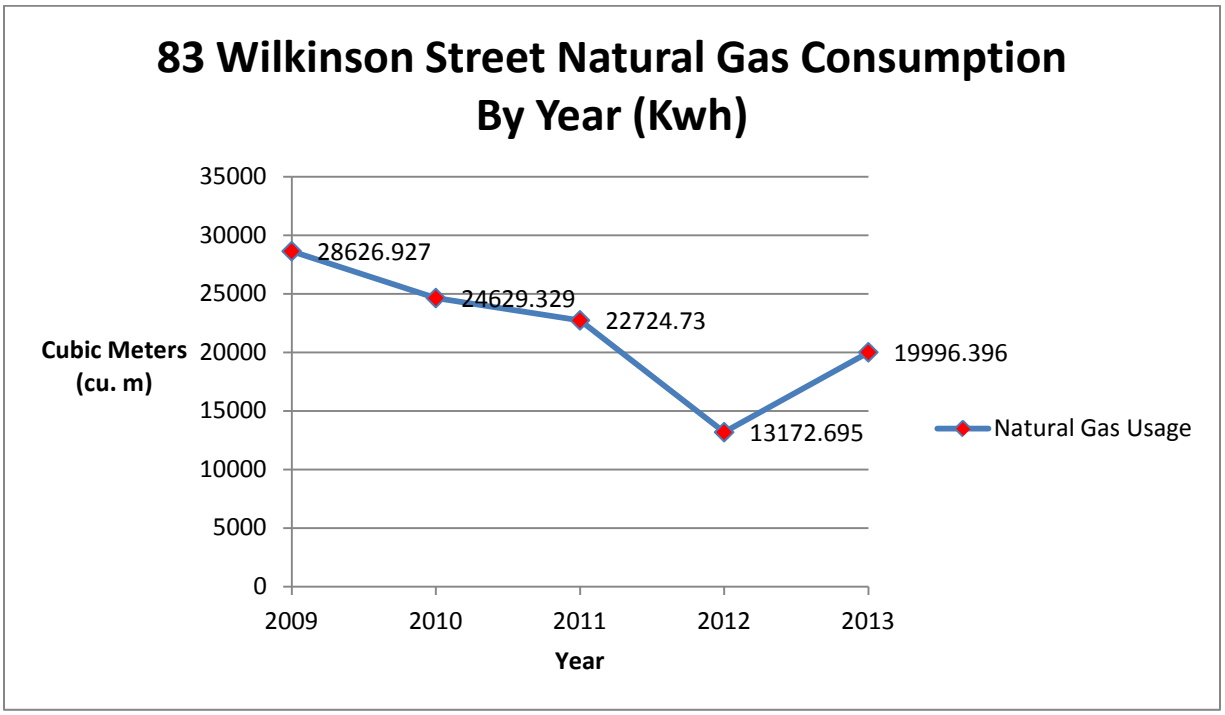

38 Erie Street North, Old Town Hall Electricity Consumption By Year (Kwh)
300000
250000
200000
150000
100000
50000
0
Kilowatt Hours
265285
252483
0
0
0
2009
2010
2011
2012
2013
Year
Electricity Consumption (Kwh)

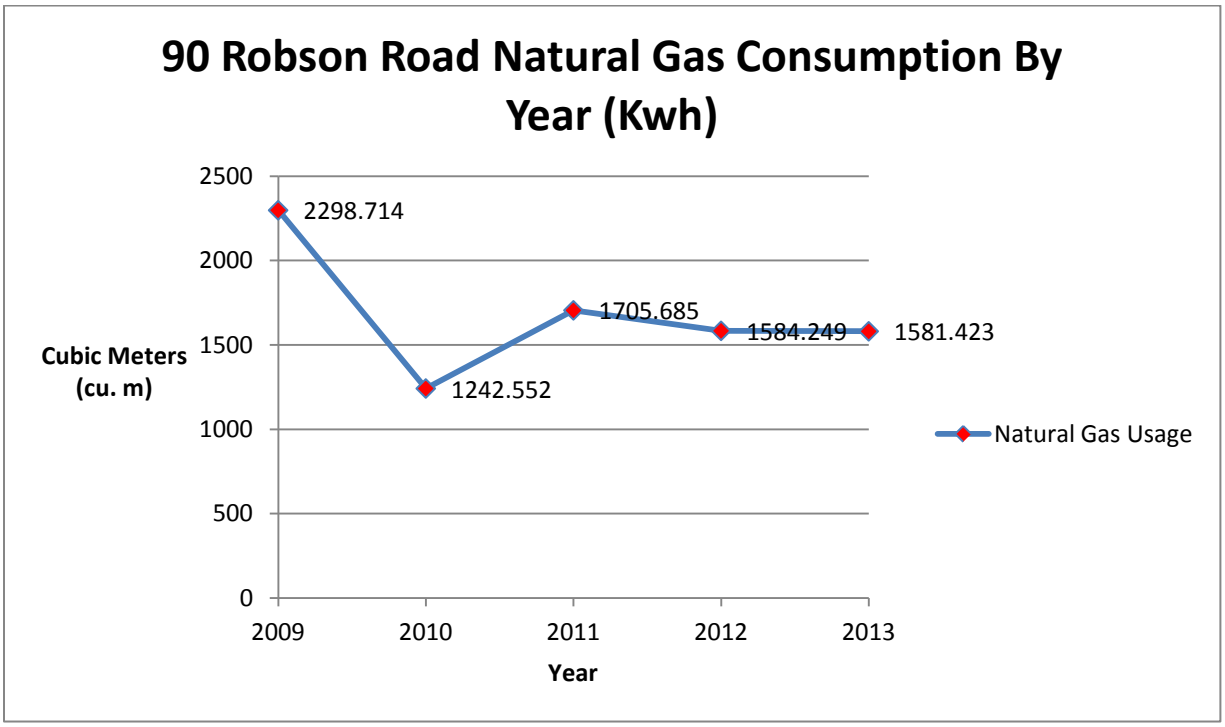
Appendix B: 2009 to 2013 Historical Data - Natural Gas Consumption

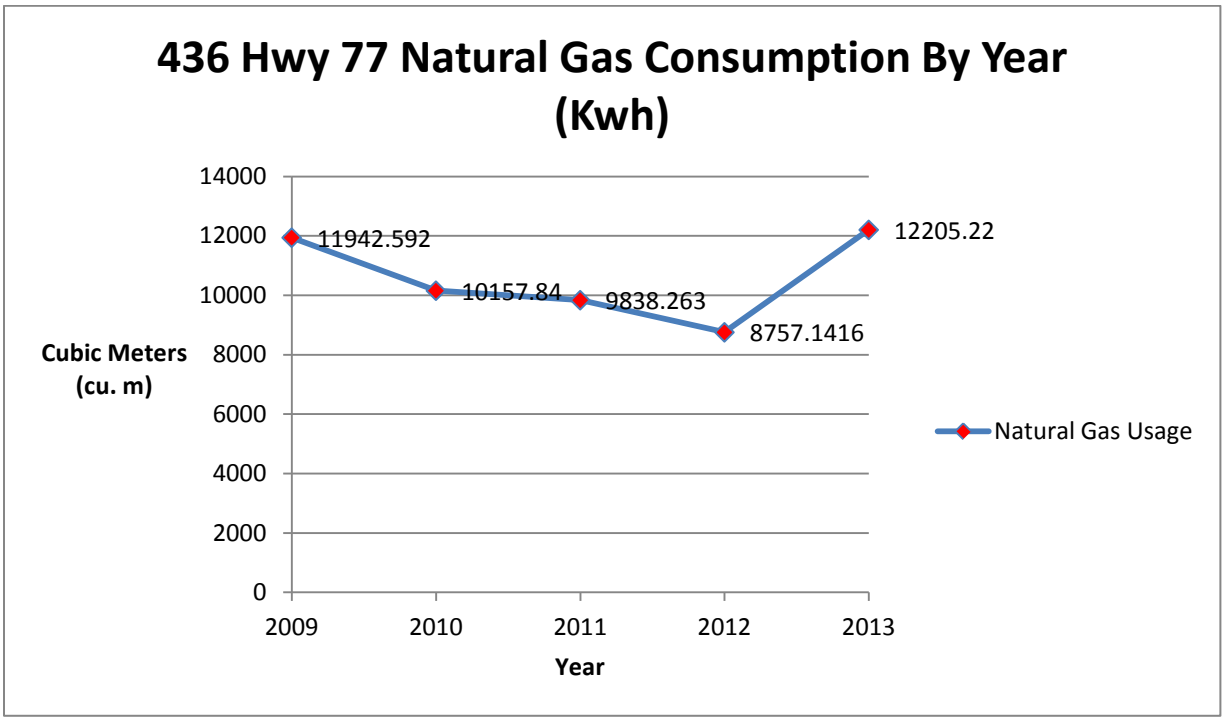


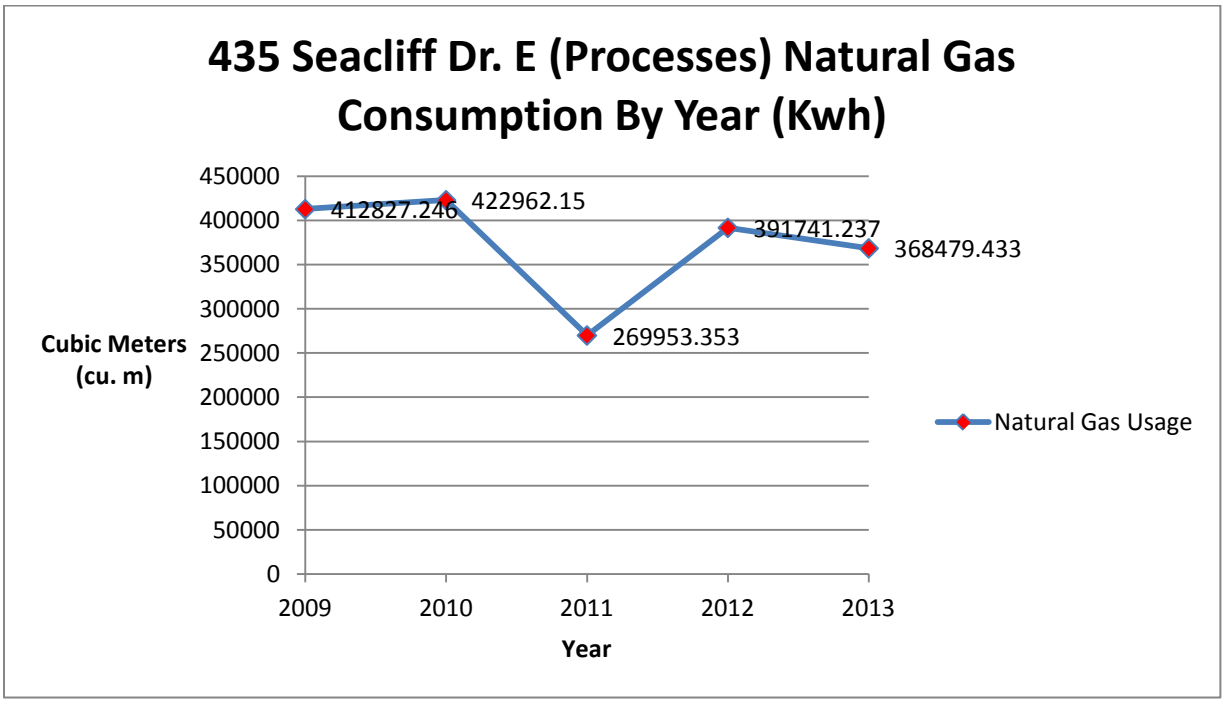


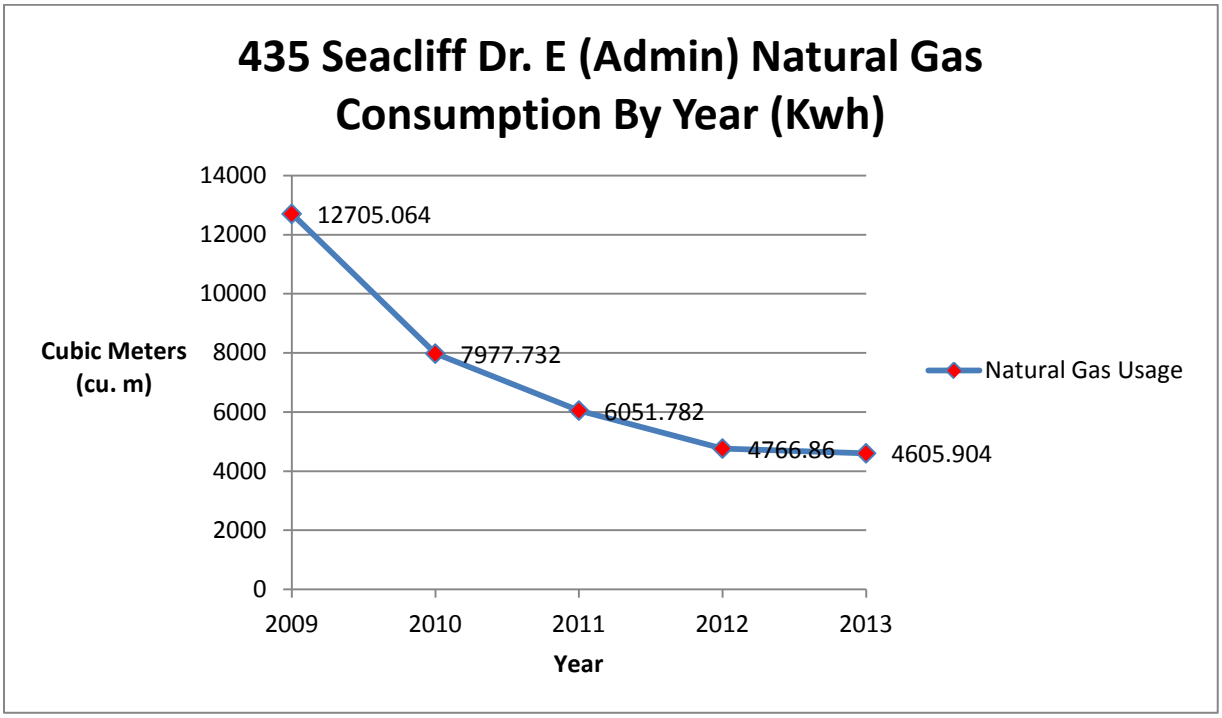

10 Hazelton Street Natural Gas Consumption By Year (Kwh)
Cubic Meters (cu. m)
40000
35000
30000
25000
20000
15000
10000
5000
0
24032.028
27965.827
30820.864
22812.071
34345.184
2009
2010
2011
2012
2013
Year
Natural Gas Usage

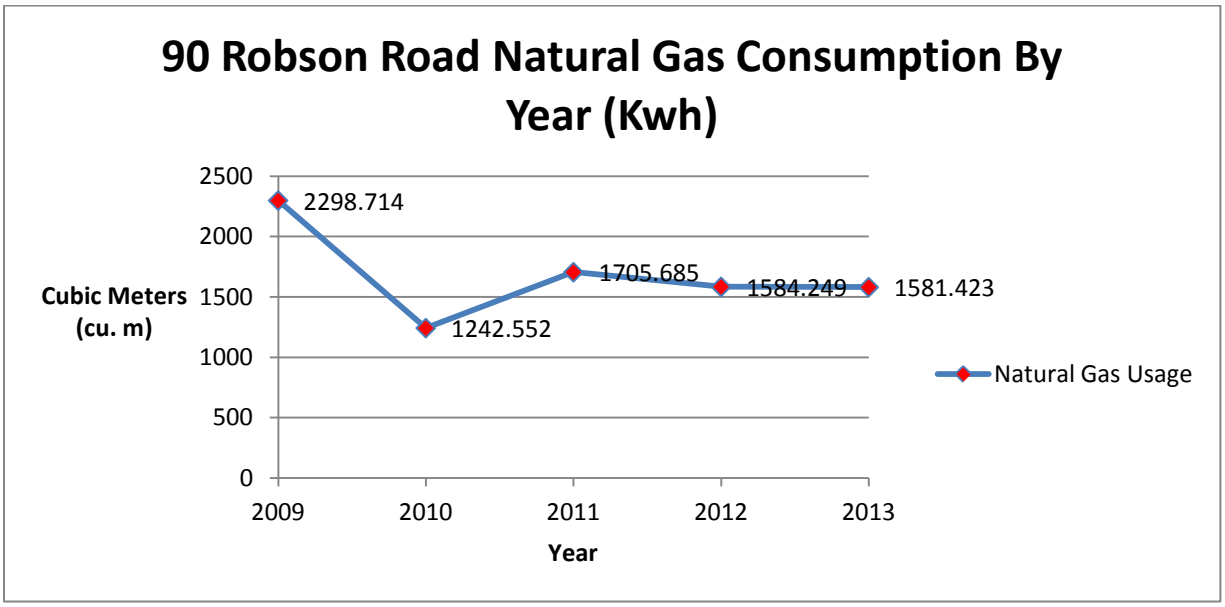

83 Wilkinson Street Natural Gas Consumption By Year (Kwh)
Cubic Meters (cu. m)
35000
30000
25000
20000
15000
10000
5000
0
28626.927
24629.329
22724.73
13172.695
19996.396
2009
2010
2011
2012
2013
Year
Natural Gas Usage

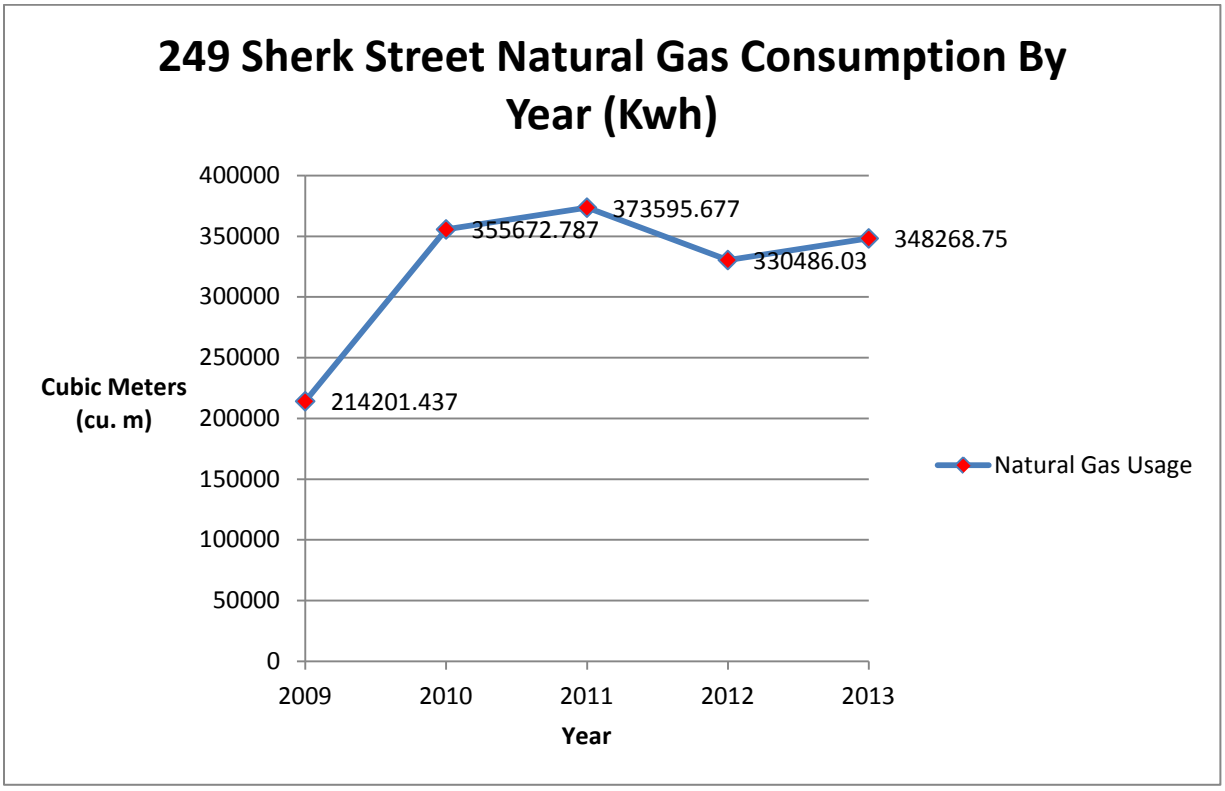

90 Robson Road Natural Gas Consumption By Year (Kwh)
Cubic Meters (cu. m)
2500
2000
1500
1000
500
0
2298.714
1242.552
1705.685
1584.249
1581.423
2009
2010
2011
2012
2013
Year
Natural Gas Usage

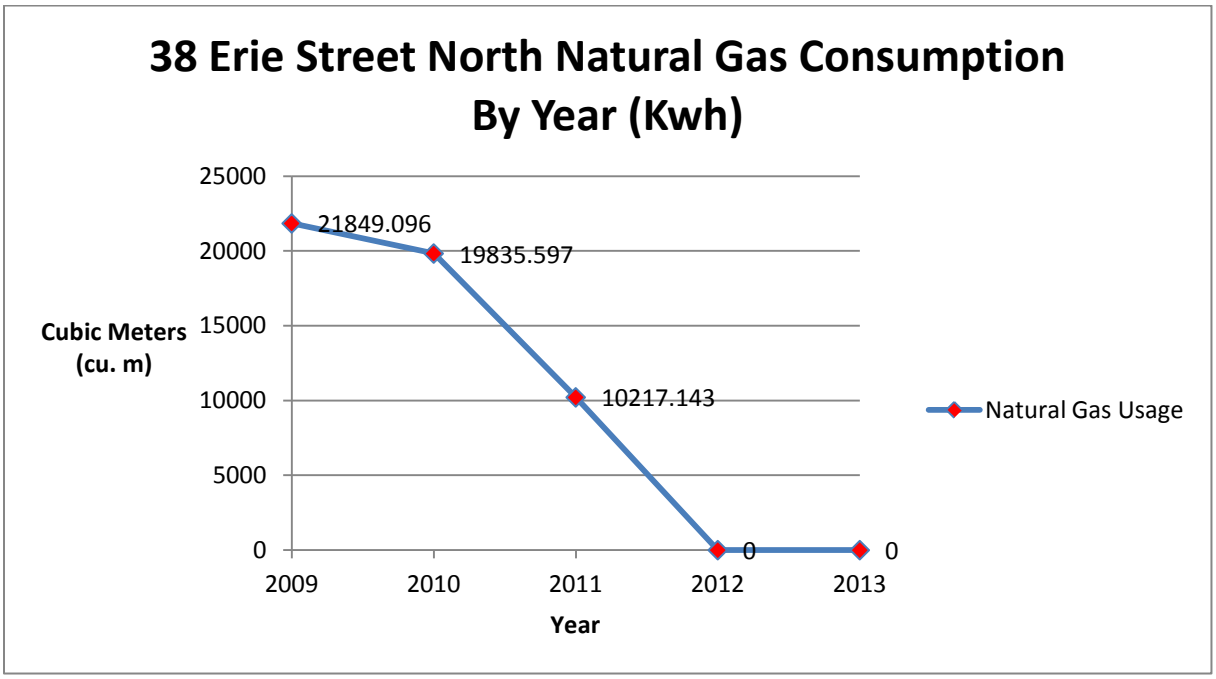

436 Hwy 77 Natural Gas Consumption By Year (Kwh)
Cubic Meters (cu. m)
14000
12000
10000
8000
6000
4000
2000
0
11942.592
10157.84
9838.263
8757.1416
12205.22
2009
2010
2011
2012
2013
Year
Natural Gas Usage


435 Seacliff Dr. E (Processes) Natural Gas Consumption By Year (Kwh)
Cubic Meters (cu. m)
450000
400000
350000
300000
250000
200000
150000
100000
50000
0
412827.246
422962.15
269953.353
391741.237
368479.433
2009
2010
2011
2012
2013
Year
Natural Gas Usage


435 Seacliff Dr. E (Admin) Natural Gas Consumption By Year (Kwh)
Cubic Meters (cu. m)
14000
12000
10000
8000
6000
4000
2000
0
12705.064
7977.732
6051.782
4766.86
4605.904
2009
2010
2011
2012
2013
Year
Natural Gas Usage


90 Robson Road Natural Gas Consumption By Year (Kwh)
Cubic Meters (cu. m)
2500
2000
1500
1000
500
0
2298.714
1242.552
1705.685
1584.249
1581.423
2009
2010
2011
2012
2013
Year
Natural Gas Usage


249 Sherk Street Natural Gas Consumption By Year (Kwh)
Cubic Meters (cu. m)
400000
350000
300000
250000
200000
150000
100000
50000
0
214201.437
355672.787
373595.677
330486.03
348268.75
2009
2010
2011
2012
2013
Year
Natural Gas Usage


38 Erie Street North Natural Gas Consumption By Year (Kwh)
Cubic Meters (cu. m)
25000
20000
15000
10000
5000
0
21849.096
19835.597
10217.143
0
0
2009
2010
2011
2012
2013
Year
Natural Gas Usage