MEDIA RELEASE: Friday, May 9, 2008, 4:30 p.m.

REGIONAL MUNICIPALITY OF WATERLOO
ADMINISTRATION AND FINANCE COMMITTEE
AGENDA

Tuesday, May 13, 2008
11:30 a.m.
(Approximate time, following Planning & Works Committee meeting)
Regional Council Chamber
150 Frederick Street, Kitchener, Ontario

1. DECLARATIONS OF PECUNIARY INTEREST UNDER THE MUNICIPAL CONFLICT OF INTEREST ACT

2. DELEGATIONS

(Please note that Report CR-CLK-08-002/PH-08-015/E-08-037 Fluoridation – City of Waterloo Request to Hold a Plebiscite and Participation in a Public Information Campaign, which includes only the report and Appendix A in this package, is provided for information purposes only)

i. Robert J. Fleming

ii. Carole Clinch

3. REPORTS - Finance
a) F-08-039 2007 Development Charge Transaction Report
b) F-08-040 History of Net Supplementary Taxes

REPORTS – Corporate Resources
c) CR-CLK-08-003 Information Management and Archives Update 2007
d) CR-FM-08-012 Update – Corporate Environmental Sustainability Strategy
e) CR-FM-08-014 Tenant Changes at 150 Main Street – Update
4. REPORT FROM AUDIT COMMITTEE

a) Recommendations of the Audit Committee

- Terms of Reference
- Minutes of the Audit Committee meeting – May 8, 2008

b) Information Reports

- CA-08-001 2007 Internal Audit Report
  - Presentation made to Audit Committee included for information
- Memorandum to Members of the Audit Committee re: Proposed procedures for the Audit Committee

5. INFORMATION/CORRESPONDENCE

6. OTHER BUSINESS

a) Council Enquiries and Requests for Information Tracking List

7. NEXT MEETING

8. MOTION TO GO INTO CLOSED SESSION

THAT a closed Committee meeting be held on Tuesday, May 13, 2008 following Administration and Finance Committee meeting, in accordance with Section 239 of the Municipal Act, 2001, for the purposes of considering the following subject matters:

a) Proposed or pending acquisition of land in the City of Kitchener

9. ADJOURN
REGION OF WATERLOO
CORPORATE RESOURCES
Legal Services
Council & Administrative Services

TO: Chair Tom Galloway and Members of the Administrative and Finance Committee
DATE: May 13, 2008
FILE CODE: L11-00
SUBJECT: FLUORIDATION – CITY OF WATERLOO REQUEST TO HOLD A PLEBISCITE - SUPPLEMENTARY INFORMATION TO REPORT CR-CLK-08-002/PH-08-015, DATED APRIL 22, 2008

RECOMMENDATION:

THAT The Regional Municipality of Waterloo direct the Clerk to commence the process in early 2010 for a plebiscite pursuant to the Municipal Elections Act concerning the continued fluoridation of the water for the City of Waterloo, portions of Woolwich Township including Elmira and St. Jacob’s, Country Squire Road, and the Farmer’s Market area, and small portions of Kitchener and Wilmot, to coincide with the next municipal election (November, 2010);

AND THAT The Regional Municipality of Waterloo, if a plebiscite is held, implement the simple majority result on the answer to the plebiscite question, based on the cumulative votes cast in the City of Waterloo, portions of Woolwich Township including Elmira and St. Jacob’s, Country Squire Road, and the Farmer’s Market area, and small portions of Kitchener and Wilmot, in the event that the double majority formula to create a binding result under the Municipal Elections Act is not achieved;

AND THAT The Regional Municipality of Waterloo supports the formulation of an Ontario Fluoridation Office as endorsed by the Council of Ontario Medical Officers of Health, and that a copy of this report be forwarded to the Chief Medical Officer of Health for Ontario.

SUMMARY:

Report CR-CLK-08-002/PH-08-015/E-08-037(copy included for information and reference proposes) was presented to Committee on April 22, 2008. During the debate at the meeting concerns were expressed about the binding nature of any election results and the jurisdiction for the City of Waterloo to hold previous plebiscites. The purpose of this report is to provide some clarification and recommendations on these identified issues and to ensure the appropriate recommendations from Report CR-CLK-08-002/PH-08-015/E-08-037are brought forward given the clarification.

The Region has jurisdiction over the fluoridation of water within Waterloo Region pursuant to the Municipal Act, 2001 and the Fluoridation Act. However, the Region does not have stand alone authority under the Fluoridation Act to hold a “plebiscite”. This stand alone authority for a plebiscite under the Fluoridation Act only applies to single-tier municipalities and local municipalities not forming part of a regional municipality.

If the Region chooses voluntarily to do so, the Region has authority under the Municipal Elections Act to hold a municipal question or “plebiscite” on discontinuing fluoridation. In this regard, the process to place the question on the ballot, determining the nature of the question, the notice
requirements and so on as set out in Report CR-CLK-08-002/PH-08-015/E-08-037, dated April 22, 2008, and required under the Municipal Elections Act would apply. The legal binding effect of a plebiscite would also be determined in accordance with the provisions of the Municipal Elections Act. Specifically, at least 50% of the eligible electors must vote on the question and more than 50% of those votes must be in favour of the question.

Having said this, Council could consider implementing voluntarily, by resolution, a lower threshold in regard to the results of a plebiscite if there is a non-binding result under the Municipal Elections Act. If the Region wishes to do so, it is recommended that a simple majority threshold be selected. Specifically, the threshold would be to implement the majority result, based upon the cumulative votes of all persons within the City of Waterloo and the affected areas of the City of Kitchener and Townships of Woolwich and Wilmot, of the fluoride question without requiring that at least 50% of the eligible voters vote on the question. This simple majority threshold is reasonable given that seldom has a municipal election had 50% or greater voter turnout and the results would be consistent with democratic principles.

REPORT:

At its meeting of April 22 2008 and consideration of Report CR-CLK-08-002/PH-08-015/E-08-037 on Fluoridation – City of Waterloo Request to hold a Plebiscite and Participation in a Public Information Campaign, the Administration and Finance Committee requested that staff provide further clarification in regard to: (1) the binding effect of a plebiscite on the issue of fluoridation; and (2) the jurisdiction for the City of Waterloo to hold plebiscites in 1981 and 1982.

1. Binding Effect of a Regional Plebiscite on Fluoridation

Under the Municipal Act, 2001, the Region has jurisdiction over water treatment and supply of municipal drinking water, including any fluoridation. Under Section 2.1 of the Fluoridation Act, the Region has unfettered authority to establish, maintain and operate or discontinue fluoridation by by-law without holding a “plebiscite” or other public process.

It is confirmed that the Region does not have authority to conduct a plebiscite under the Fluoridation Act on the question of discontinuing fluoridation of drinking water in the City of Waterloo and the areas of Woolwich and Wilmot Townships and the City of Kitchener receiving fluoridated water currently (the “Fluoride Question”). The authority to conduct a plebiscite under the Fluoridation Act is restricted to only single tier municipalities and local municipalities that are not located within a regional municipality and that have responsibility for municipal drinking water treatment and supply. However, the Fluoridation Act does not prohibit the Region from conducting a plebiscite under the Municipal Elections Act.

If the Region chooses voluntarily to do so, the Region has authority under the Municipal Elections Act to hold a municipal question or “plebiscite” on the Fluoride Question. In this regard, Report CR-CLK-08-002/PH-08-015/E-08-037 sets out the process under the Municipal Elections Act in relation to the process to place the question on the ballot, determining the nature of the question, the notice requirements and so on.

With regard to the results of conducting such a plebiscite under the Municipal Elections Act, there are 3 possible outcomes, of which the first two create a legally binding result (assume the question, generally speaking, asks whether a voter is in favour of discontinuing fluoridation):

(a) If at least 50% of the eligible electors vote and more than 50% of those votes respond to the Fluoride Question in the affirmative then the Municipal Elections Act requires the Region to implement the discontinuation of fluoridation in the affected areas in a timely manner;
(b) If at least 50% of the eligible electors vote and more than 50% of those votes respond to the Fluoride Question in the negative then the Municipal Elections Act requires the Region to not do anything within its jurisdiction to implement the discontinuation of fluoridation in the affected areas for a period of at least four years following voting day; or

(c) If less than 50% of the eligible electors vote, then the result of the plebiscite is not binding on the Region and the Region is free to do or not do anything with respect to the Fluoride Question.

For the purposes of a municipal question, staff would interpret the Municipal Elections Act so the eligible voters are those voters in the affected areas where fluoridation is currently in place. Further, the results would be determined on a cumulative or global basis since the water fluoridation process needs to be dealt with as a whole. For example, on an operational basis, the Region could not continue fluoridation in the City of Waterloo and then discontinue fluoridation in Elmira and St. Jacob’s.

If the outcome of the Fluoride Question does not create a binding result on the Region under the Municipal Elections Act as described in outcome (c) described above, then the Region may exercise its authority under section 2.1 of the Fluoridation Act to continue fluoridation or determine to discontinue fluoridation. Having said this, if the Region wishes to take guidance from the results of the Fluoride Question where a non-binding result occurs, the Region may do so by way of selecting, by way of simple resolution, a threshold at which it will implement the results of the Fluoride Question.

If the Region wishes to do so, it is recommended that a simple majority threshold be selected. Specifically, the threshold would be to implement the majority result, based upon the cumulative votes of all persons within the City of Waterloo and the affected areas of the City of Kitchener and Townships of Woolwich and Wilmot, of the Fluoride Question without requiring that at least 50% of the eligible voters vote on the Fluoride Question. This simple majority threshold mirrors the legislated threshold set out in the Fluoridation Act and is reasonable given that seldom has a municipal election had 50% or greater voter turnout and the results would be consistent with democratic principles. Again, dealing with the vote on a cumulative or global basis is recommended so the Region can maintain operational efficiency and ensure an implementable solution.

Further, it is recommended that this voluntary threshold be selected by the Region prior to the Fluoride Question being put to the affected voters. It is recognized, however, that regardless of this resolution, the current or any future Regional Council may exercise its authority with respect to fluoridation under section 2.1 of the Fluoridation Act at any time, subject to any binding result of the plebiscite under the Municipal Elections Act as described above.

In conclusion, the election process will be conducted under the Municipal Elections Act. The original recommendation that appeared in Report CLK-08-002/PH-08-015/E-08-037 providing direction to the Clerk made reference to both the Fluoridation Act and the Municipal Elections Act. The Fluoridation Act was referenced because it provides the Region with the jurisdiction over the issue of fluoridation, not because it is the authority for a plebiscite. The recommendation included in this report has been amended to make reference to the Municipal Election Act only to ensure clarity.

The Jurisdiction for the City of Waterloo to Hold Plebiscites in 1981 and 1982

Staff has been unable to determine definitively the legal basis on which the City of Waterloo conducted its fluoride plebiscites in the early 1980’s. However, staff notes that the Fluoridation Act in the 1980’s did not contain the clear language that currently exists in regard to a regional
municipality’s jurisdiction over fluoridation. Staff notes that the Regional Municipalities Act and the Fluoridation Act were amended in 1990 and 2001, respectively, to contain this clear wording.

It should be emphasized, based on the current legislation, that the City of Waterloo does not presently have the authority to hold a plebiscite under either the Fluoridation Act or the Municipal Elections Act in regard to fluoridation.

Next Steps
The next steps remain the same as those outlined in the previous report. The only clarification is that staff no longer needs to address the question of the binding nature of the plebiscite in the 2010 report. Upon approval of the recommendations staff will undertake the following:

- Correspond with the Chief Medical Officer of Health for Ontario on the establishment of an Ontario Fluoridation Office;
- Correspond with the Clerks of Waterloo, Woolwich, Wilmot and Kitchener in regards to holding a plebiscite;
- Continue to act as a resource to the public by providing evidence-based, scientifically peer-reviewed information, including the posting of this information to the Region’s website and the distribution of fact sheet material;
- Commence preparation of a report to deal with putting the question on the ballot for early 2010 in order to meet the necessary Municipal Elections Act timelines.

CORPORATE STRATEGIC PLAN:

Focus Area 3: Healthy and Safe Communities: Support safe and caring communities that enhance all aspects of health.

Focus Area 6: Service Excellence: Foster a culture of citizen/customer service that is responsive to community needs. In particular response to the following objective: Ensure all Regional programs and services are responsive, efficient, effective and accountable to the public.

FINANCIAL IMPLICATIONS:

None at this time.

OTHER DEPARTMENT CONSULTATIONS/CONCURRENCE:

Public Health and Transportation and Environmental Services were consulted in the development of this report.

PREPARED BY:  Kris Fletcher, Director, Council and Administrative Services/Regional Clerk
Richard Brookes, Solicitor

APPROVED BY:  Gary Sosnoski, Commissioner, Corporate Resources
Debra Arnold, Director, Legal Services/Regional Solicitor
Current Status Of Water Fluoridation Practices In...

Waterloo
Elmira
St. Jacobs
part of Kitchener
part of Wilmot Twp.
part of Woolwich Twp.
and possibly Elsewhere?
When Considering Regional Fluoridation Options…

- Understand interconnectivity of the various water distribution systems.
- Water systems are interconnected for supply, security of supply and maintaining system pressures.
- Interconnection mitigates the possibility of water outages from systems failures or shortages, as areas may be back-fed from other areas.
- Interconnections are used to mitigate areas with poor water pressure, or problem water.
- Line breakages, fire fighting, pump failures and water shortages can cause changes in the direction of water flow within the interconnected system.
- Problems of cross-fluoridation, and continuance of fluoridation, are something water treatment and distribution staff are well aware of.
- The Regional MOH had no idea communities outside Waterloo were being fluoridated, according to remarks made to Waterloo Council.
Waterloo has only four existing cross-border water agreements, according to the Clerk’s office.

- Waterloo-Woolwich (Factory Outlet Mall) 1991
  NO MENTION OF FLUORIDE / FLUORIDATION

- Waterloo-Kitchener (Woolwich MacVille Kiwanis Grand River) 2000
  NO MENTION OF FLUORIDE / FLUORIDATION

- Waterloo-Woolwich (Stockyards Industrial-Commercial) 2006
  NO MENTION OF FLUORIDE / FLUORIDATION

- Waterloo-Woolwich (upcoming Walmart) 2008
  MENTIONS FLUORIDE
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  MENTIONS FLUORIDE

Elmira and St. Jacobs started receiving fluoridated water from Waterloo in 1992.

Other parts of the interconnected network may also receive fluoridated water periodically due to changes in system pressure and direction of flow.
Under the Fluoridation Act, Regional Council may continue to fluoridate those still receiving regional fluoridated water as at June 29, 1987 without passing a by-law.

- But all these other communities, beyond Waterloo, received water fluoridation after 1987.
- Did the Region pass the necessary by-laws to legally fluoridate these communities?
- If not, shouldn’t this fluoridation stop immediately, before someone takes legal action?
- Kitchener always rejected artificial fluoridation.
- Where was the plebiscite for these communities?
- Is it only important to have a plebiscite when things become transparent?
- When were these communities ever notified?
- The Regional MOH had a professional obligation & duty of health care to notify people receiving fluoridated water.
Where in the Municipal Act does it indicate the Region has authority to hold a municipal plebiscite on water fluoridation?

- Regional sphere of jurisdiction claimed here is “water production, treatment and storage” under Section 11 of the Municipal Act.
- We cannot merely pre-suppose water fluoridation satisfies a “water treatment” definition.
- Fluoridation is a chemical process which does not improve the quality of treated water.
- Fluoridation does not reduce contaminant levels in treated water.
- Fluoridation does not make treated water safer to drink.
- Fluoridation degrades water quality and water safety by adding traces of lead, arsenic, mercury, cadmium, radionuclides, etc. all found in Hydrofluorosilicic Acid.
- Only by statutory authority of the Fluoridation Act has the fluoridation question ever been allowed to be put to the electorate.
- The Region admits it does not have Fluoridation Act stand-alone authority to hold a plebiscite.
- The Fluoridation Act is quite clear on what powers the Region has, and must to adhere to.
- The region has no authority to re-write laws concerning fluoridation in Ontario.
- People cry foul when a plebiscite question is not put ‘just so’ – they will certainly cry foul here!
Where in the Municipal Elections Act does it indicate the Region can implement a simple majority result based on the cumulative votes cast; and not subscribe to the required double 50% majority formula for a binding fluoridation plebiscite?

- Municipal Elections Act states at least 50% of eligible electors must vote on the question, and over 50% of those votes must decide the question.
- Why create a mockery through an election process highly unlikely to achieve the minimum 50% turnout required?
- Why waste taxpayer’s money, time and effort on a non-binding election?
- The Fluoridation Act gives the Region full authority to establish, maintain and operate, or discontinue, fluoridation by by-law without holding a “plebiscite” or other public process.
- Does the Region simply want to wait and see which way the wind is blowing, before deciding what it must do?
How will the Region define and enumerate electors for this plebiscite?

- What water fluoridation concentration must one receive to be an elector (0.5 - 0.8 mg/L) ...or varying concentrations due to periodic changes in system pressures and direction of flow?

- How will the Region enumerate water fluoridation concentrations door-to-door, house-to-house, to uniformly and accurately generate a list of electors?

- Will those who periodically receive fluoridated water due to changes in system pressures and direction of flow also be counted as electors?

- Will the citizens see this due diligence going forward?
What question will the Region ask during this plebiscite?

- How do we determine the nature of the question?
- Do we ask those unaware their water is fluoridated if they wish to continuing or discontinuing fluoridation?
- Is there one question we can universally ask all affected electors?
- Kitchener has always said no to fluoridation, so what do we ask those electors?
- How do you say to some electors that water fluoridation has been forced upon you without your knowledge or consent, then ask are you in favour of water fluoridation?
- Is there any authority within a mutually binding plebiscite to ask a different question of different electors?
- Perhaps not adhering to the Fluoridation Act will at least allow us to ask a much more telling question. “Are you in favour of fluoridating with hydroflurosilicic acid containing traces of arsenic lead, mercury, cadmium, radionuclides…”
- It’s all about an informed plebiscite… right?

It’s all about an informed plebiscite… right?
If Waterloo Council were to change its resolution, and ask the Region to turn off fluoridation, or ask for a different method of fluoridation, would the Region comply?

- It was said in these chambers that had Waterloo Council passed a motion to discontinue water fluoridation, Regional Council would have likely done so.
- It was said we are having this plebiscite because Waterloo Council asked for it.
- Waterloo Council assured its citizens this would be a *made in Waterloo solution, decided by Waterloo’s people*.
- Must Waterloo’s Mayor and Council now sit by as our City’s fate is to be decided by communities outside Waterloo.
- Can anyone accept holding a binding plebiscite on fluoridation, where disparate communities and parts of disparate communities decide each other’s fates?
- Waterloo has no Fluoridation Act authority to hold its own plebiscite, but it could come back to the Region with an amended fluoridation resolution.
- Waterloo has the authority to reject the chemical currently being used to fluoridate its water, pursuant to the Safe Drinking Water Act.
- Would the Region permit Waterloo Council an opportunity to re-think these things?
Time For Questions…
Waterloo Region RECORD
Saturday May 10 2008

“Waterloo Region is the largest community in Canada built on top of its water supply. The key to tomorrow is taking care of our wells today.”

Liquid scrubbing solution comes from the smoke stack emissions of the phosphate mining industry. Contains HFSA, arsenic, lead, mercury, radioactive materials.

This is not “natural” fluoride.

Environment Canada states that hydrofluorosilicic acid is:

“Hazardous Waste”

Canadian Environmental Protection Act states that inorganic fluorides, arsenic, lead are:

Toxic Substance:

- Bioaccumulative (accumulates in humans, animals and plants)
- Toxic (dangerous immediate or long-term effects)
- Anthropogenic (made/released by humans)
- Persistent

Transport Canada states that HFSA is:

“Dangerous Good”

“Hydrofluorosilicic acid is identified as a dangerous good under the Transportation of Dangerous Goods Regulations and has been classified as a Class 8 corrosive substance.”

What are you putting into our drinking water? What were we told?

- Original claims were always about “natural” fluoride (calcium fluoride).
- Never about industrial “hazardous waste” fluoride we are actually using.
- We didn’t vote for hazardous waste fluoride.
Does the Public Know?

Due to shortages in North America, fluoridation chemicals are now coming from China.

*“Kip Duchon (CDC) reported in 2007 that when U.S. Agrichemicals withdrew from the market in 2005, about half of U.S. sodium silicofluoride supplies began to be imported from a producer in China.”* Boulder Colorado

Do we need to protect our source water?

- Pollution of Greenbrook wells
- Pollution of Middleton wells
- Pollution of Elmira wells
- Grand River - 2nd most polluted river in Ontario
- Illegal to put HFSA directly into source water.
- How much HFSA and co-contaminants are dumped into our source water via drinking water each year?

99%

>99% of fluoridated water is delivered to our environment where it pollutes source water and kills susceptible species

>99 cents of every dollar spent on fluoridated water does not reach its target – the teeth - but goes to...

- Industry
- Agriculture
- Leaks in infrastructure - “unbilled losses”
- Washing dishes, clothes
- Bathing
- Flushed down the toilet...

1%

<1% of fluoridated water delivered to your house is consumed.

<1 cent of every dollar spent on fluoridated water reaches its target - your mouth

Is this an efficient use of taxpayers’ money?

Canadian Water Quality Guideline for Fluoride in Source Water

“The Canadian Water Quality Guideline (CWQG) to protect freshwater fish is 0.12 mg/L of water” Health Canada

Lake Ontario fluoride levels are up to double the CWQG.

The mean value of domestic sewage is estimated to be 5 times higher than CWQG. (Camargo 2003 Review)

Fluoride Toothpaste Recommendations - THEN
Fluoride Toothpaste Recommendations - NOW

Children under 6 years should NOT USE Fluoridated Dental Products because they may swallow it.

Ont Min Health: “Use non-fluoridated toothpaste or no toothpaste for young children.” Letter to MOH 2000
Health Canada: “Children under six years of age should be supervised while brushing, and children under the age of three should have their teeth brushed by an adult without using any toothpaste.” Fluorides and Human Health 2005
Health Canada: “Never give fluoridated mouthwash or mouth rinses to children under six years of age, as they may swallow it.” Fluorides and Human Health

“If more than used for brushing is accidentally swallowed, get medical help or contact a Poison Control Centre right away”.

Health Canada

“Keep out of reach of children under 6 years of age. If you swallow more than used for brushing, get medical help or contact a Poison Control Center right away.” US FDA label

A pea-sized amount of fluoridated toothpaste contains the same amount of fluoride as a glass of water

Don't Swallow! = Swallow!

0.25mg Fluoride in Toothpaste
0.25mg Fluoride in Drinking Water

Fluoride Concentration, by specific independent analysis (Individual samples will vary)

Coca Cola Classic ....................... 0.98 ppm
Diet Coke ................................ 1.12 ppm
Sprite ..................................... 0.72 ppm
Lucerne 2% Milk ......................... 0.72 ppm
Minute Maid orange juice ............ 0.98 ppm
Gerber Graduate Berry Juice ....... 3.0 ppm
Gerber White Grape Juice .......... 6.8 ppm
Welch’s White Grape Juice
(concentrate) ............................ 5.8 ppm
Hawaiian Punch ......................... 0.85 ppm
Fruit Loops ............................. 2.1 ppm
General Mills’ Wheaties ............... 10.1 ppm
Kellogg’s Shredded Wheat .......... 9.4 ppm
Post’s Grape Nut cereal .............. 6.4 ppm

Health Canada

“Health Canada does not consider fluoride as an essential nutrient.”
International Society of Fluoride Research Conference

“FLUORIDE: BONE & BRAIN EFFECTS”

August 7 - 11, 2008
University of Toronto
Mississauga Campus

Dr. Vyvyan Howard
President of the International Society of Doctors for the Environment (ISDE)
Professor of Infant and fetal pathology from the University of Belfast
Fluoride and the fetal and infant brain.

Warren Bell
Canadian Association of Physicians for the Environment - past president

“The days of wholesale deliberate fluoridation ... are numbered.”
Globe and Mail article (Nov 28, 2007)

Michelle Giddings (Head of Drinking Water Section at Health Canada 2000)

"Referenda are frequently conducted in a heated acrimonious atmosphere, one not considered conducive to reasoned debate." affidavit, Exhibit 1, pg 9 - Millership

How do we get this stuff out of our water?

1. Reverse Osmosis
2. Distillation
3. Stop fluoridating

Which is easier?
Which is cheaper?

A Brief History of Fluoride Pollution and Water Fluoridation

Andrew W. Mellon
- founder and major stockholder of ALCOA - a large aluminum manufacturing company
- faced expensive fluoride pollution lawsuits

Oscar R. Ewing
- ALCOA lawyer
- Head of US Federal Security Agency
- Head of US Public Health Service

Lead,
Asbestos,
Thalidomide,
Vioxx...
Dr. Peter Cooney, Chief Dental Officer for Health Canada

“In, for example, British Columbia you tend to have a lot of what we call tree-huggers or environmentalist folks. They tend to feel that they are not comfortable with fluoride in the water.”

December 3rd presentation by the Public Health Service and Dr. Peter Cooney to Thunder Bay City Council Committee of the Whole, in response to a question from Councillor Larry Hebert regarding the lack of interest in water fluoridation in British Columbia and Quebec and 4%.

Dr. James Beck M.D., PhD

“...(plebiscite is not consent in the context of medical ethics, and not reasonable for deciding medical measures in any case)...”

The cost of fluoridation accidents?

Hooper Bay, Alaska - May 1992 HFSA overfeed:
- ONE DEATH
- 260 poisoned;
- one airlifted to hospital in critical condition.
- widow is suing the Yukon-Kuskokwim Health Corporation for $3 million

What is the difference between fluoride and chlorine?

- Splashing small amounts of HFSA on skin may be fatal because it penetrates deeply, quickly.
  Chlorine can be washed off skin.
- Boiling water evaporates chlorine; concentrates fluoride.
- Chlorine makes our water safer - disinfects water; HFSA is added as a drug.

Muriale et al 1996

“A 37-year-old male laboratory technician … knocked over a small quantity (100-230 mL) of the hydrofluoric acid onto his lap, splashing both thighs. He sustained burns to 9% of his body surface area, despite washing his legs with water …

His right leg was amputated seven days after the incident. He subsequently died from multi-organ failure 15 days after the spill.”

Richter et al 2005

“Burns caused by hydrofluoric acid can be life-threatening. Of special significance is the often underestimated local and sometimes delayed deep action of the highly diffusible free fluoride ions and the accompanying systemic toxicity.”
Soderberg et al 2004

- "Accidental hydrofluoric acid (HF) splashes often occur in industrial settings.
- **HF easily penetrates into tissues** by initial acid action allowing fluoride ions to penetrate deeply, chelating calcium and magnesium.
- Resultant hypocalcemia and hypomagnesemia can be fatal."
TO: Chair T. Galloway and Members of the Administration and Finance Committee  
DATE: May 13, 2008  
FILE CODE: F27-50  
SUBJECT: 2007 DEVELOPMENT CHARGE TRANSACTION REPORT  

RECOMMENDATION:  
For Information  

SUMMARY:  
The Development Charges Act, 1997 (DC Act) requires the Treasurer to submit to Council an annual statement of development charge transactions. The following report provides the details required under the Development Charges legislation. Copies of this report are forwarded to the various local development organizations involved with the Region in the development charge consultation process and to the Minister of Municipal Affairs and Housing.  

REPORT:  
Development Charge Reserve Fund Balances  
The Regional Development Charge Reserve Fund (RDC Fund) started the year with a balance of $75.4 million. At the end of 2007, the RDC Fund had a balance of $65.6 million as a result of the transactions detailed below (see Appendix A). The current balances will be drawn down as the capital programs are implemented. In the 2008 Capital Budget, RDC funding for projects is projected to require $51 million from the RDC Fund.  

2007 Development Charge Collections  
Development Charge collections in 2007 totaled $25.5 million, an increase of approximately 6.7% over 2006 collections of $23.9 million. Of the total collections, $17.0 million was attributable to residential developments and $8.5 million was for non-residential developments (see Appendix B).  

2007 Development Charge Capital Appropriations  
In 2007, appropriations to finance growth-related capital projects and debt charges totaled $42.6 million. Table 1 provides a breakdown of 2007 appropriations by service groups (see Appendix B for summary and Appendix C for details by project).
Table 1: 2007 Appropriations to Capital Projects

<table>
<thead>
<tr>
<th>Appropriations</th>
<th>2007 Appropriations</th>
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<td>Water Supply Capital Projects</td>
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<td>Wastewater Treatment Capital Projects</td>
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<td>Roads Capital Projects</td>
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<td>Police</td>
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<td>RGMS</td>
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<td>Debt Charges</td>
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<td><strong>Total</strong></td>
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</tbody>
</table>

Exemptions and Discounts

Major exemptions provided in the RDC By-law are: 50% industrial exemption, downtown core exemption, and exemption for municipalities, school boards and Crown Corporations. The DC Act specifies that any shortfall in development charge revenue resulting from exemptions and/or discounts must be made up from sources other than higher charges on other development. The total cost of development charge exemptions is financed from user rate reserves and property tax levies. Table 2 provides a summary of exemptions applied in 2007.

Table 2: 2007 Exemptions

<table>
<thead>
<tr>
<th>Exemptions</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>$682,800</td>
</tr>
<tr>
<td>Non-Residential</td>
<td>3,407,194</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$4,089,994</strong></td>
</tr>
</tbody>
</table>

The components of the current year exemptions include approximately $1,087,000 related to industrial developments, $1,814,000 for municipal/school board/Crown developments, and $944,000 related to downtown core developments. The balance of $245,000 was related to other exemptions, as provided in the RDC By-law. Approximately $3.4 million of the exemption costs was funded from property tax (mostly Roads Capital Levy), and $0.7 million from User Rate Reserve Funds.

Credits

As a result of infrastructure projects constructed prior to the adoption of the original by-law in 1991, the Region is carrying an outstanding full service credit balance of $1.4 million relating to the Cadillac-Fidra site in Cambridge (see Appendix D).

CORPORATE STRATEGIC PLAN:

This report supports Focus Area 5 – “Infrastructure” of the Corporate Strategic Plan and specifically Strategic Objective 5.2 in that we ensure that development charges provide stable funding for infrastructure needed to accommodate planned growth.
FINANCIAL IMPLICATIONS:

Development charges are used to fund growth-related capital infrastructure. Existing balances along with future RDC revenues will be utilized to fund approved capital programs in the near to mid-term future and any remaining balances will be factored into the review of the RDC By-law in 2008.

OTHER DEPARTMENT CONSULTATIONS/CONCURRENCE:

A copy of this report will be distributed to the development industry organizations that have been involved with the Region in the development charge consultation process and in accordance with the DC Act to the Minister of Municipal Affairs and Housing.

ATTACHMENTS:

Appendix A – Reserve Fund Transactions by Service Category
Appendix B – Summary of Reserve Fund Transactions
Appendix C – Development Charge Appropriations
Appendix D – Outstanding Credits

PREPARED BY:  A. Perrin, Financial Analyst

APPROVED BY:  L. Ryan, Chief Financial Officer
TO: Chair T. Galloway and Members of the Administration and Finance Committee

DATE: May 13, 2008

SUBJECT: HISTORY OF NET SUPPLEMENTARY TAXES

RECOMMENDATION:

For Information

SUMMARY:

The report provides a history of net supplementary taxes as requested by Committee at the meeting of April 22, 2008. The report addresses the supplementary tax process, the connection to assessment growth and the difficulty in predicting net supplementary taxes. Net supplementary taxes are subject to volatility and risk and budgets for this revenue should reflect historical trends, be sustainable over the longer term and ensure there is no possibility of an operating deficit.

REPORT:

Background

Supplementary taxes are taxes resulting from increased assessment for a property or the addition of new properties to the assessment roll. Tax write-offs occur due to a change in the status of a property, successful requests for reconsideration or appeals for reduced assessment or demolitions. “Net supplementary taxes” are supplementary taxes less write-offs for a given year. The Municipal Property Assessment Corporation (MPAC) establishes the timing of three supplementary tax runs for each year. Following each “supp run,” MPAC forwards the supplementary tax information to the Area Municipalities who then issue tax bills for the outstanding taxes. The Region receives information relative to its share of net supplementary taxes during the year-end reconciliation process in mid to late February and receives payment a few weeks following.

Supplementary tax runs have a direct impact on assessment growth as increased or new assessment is only added to the roll when a supplementary tax run has been completed. The third and final supplementary tax run is typically the largest run of the year and the Area Treasurers have requested that this final run be scheduled as late as possible in the year to ensure a maximum amount of assessment growth. This creates a “trade-off” between greater assessment growth for the next budget year or earlier information on current year supplementary taxes. In general, maximum assessment growth is preferable to earlier supplementary tax information given the volatility and uncertainty of supplementary taxes.

Volatility and Risk

Net supplementary taxes can vary widely from year to year. Appendix 1 shows the budget to actual history of net supplementary taxes over the past 21 years. While net supplementary taxes are generally a “contributor” to the Region’s year end surplus, there have been a number of years...
where there has been a budget deficit. In reviewing the history, it is very evident that net supplementary tax revenue is quite unpredictable and volatile as seen in the $8.5 million variation between the best and worst years. Net supplementary tax revenue is also susceptible to economic cycles as evidenced by the deficits in the 1990’s. The strong net supplementary tax position of recent years is largely due to good economic conditions in the Region as well as a concerted effort on behalf of MPAC to ensure the back-log of un-assessed properties was added to the roll. This trend appears to be weakening as MPAC has completed its work on the back-log and growth in the economy appears to be slowing. Net supplementary taxes were $7.2 million for 2005, decreasing to $5.9 million for 2006 and $3.9 million for 2007.

Net supplementary taxes are difficult to predict. One might assume that building permits would be an indicator of supplementary taxes however that is not the case as there is no direct correlation between permit values, supplementary taxes and assessment growth. Permit values may include things that are not assessable or have no impact on the assessed value of the property; some permits are not acted upon, lapse and construction never happens; and some permits (i.e. demolition permits) actually result in tax write-offs. Timing is also a factor as permits issued in 2008 will not necessarily result in supplementary taxes in 2008 or even 2009 as the increased assessment which generates supplementary taxes does not take effect until occupancy and the subsequent assessment by MPAC. It is difficult to project when construction will be completed, occupancy will occur and the assessment completed by MPAC.

Reassessments can also have an impact on net supplementary taxes as requests for reconsideration and assessment appeals increase as a result of general reassessments. Subsequent write-offs then reduce net supplementary taxes. The next reassessment will occur in 2009 and successful appeals and resultant write-offs will impact the 2009 and 2010 supplementary taxes. Similarly, broad based Assessment Review Board (ARB) decisions such as the recent ruling on “bank towers” could also have implications for determining the current value of similar properties beyond the metro Toronto area. This could also affect net supplementary taxes through reductions in value and resultant write-offs.

Increasing the budget for net supplementary taxes involves an element of risk as there is no certainty that the level of net supplementary taxes achieved in one year or that the average of recent years will be attainable in subsequent years. This was the case in 1990, 1991 and 1993 as shown on Appendix 1. The budget was increased significantly for 1990 and 1991 based on the actual experience for 1988 and 1989 however both years resulted in a deficit for this revenue. Further deficits occurred in the four (4) years following despite additional budget reductions. Budgets for net supplementary tax revenue should not be based on one year but rather, on historical trends, consideration of economic cycles and lags and the collective comfort for risk. Budgets should utilize the sustainability principle to set an appropriate budget level as deficits in supplementary tax revenue could lead to an overall operating deficit for the Region. With a reassessment for the 2009 tax year, indications of an economic slowdown and net supplementary taxes in a declining trend, this may not the time to be increasing the budget for this revenue.

Utilization of Operating Surplus

As noted above, net supplementary taxes have often been a contributor to the Region’s surplus and consequently, a source of funding for working funds carried forward, a source of funding for the roads capital levy and a source of funding for one-time projects and capital projects. The use of surplus for one-time and capital projects reduces debenture requirements and reduces the operating budget for debt costs over a period of ten (10) years. In the absence of a committed source of sufficient funding for the Capital Levy Reserve Fund, there is a need for net supplementary taxes to fund one-time and capital projects. In summary, budgets for net
supplementary tax revenue should be sustainable over the longer term, provide for some financial flexibility and ensure there is no possibility of an operating deficit.

Timing of Budget Process

The timing of budget approval was also raised at Committee during the discussion on supplementary taxes. While more precise information on supplementary taxes could be known earlier in the budget process by requesting MPAC to schedule earlier supplementary tax runs, the trade-off would be less assessment growth. The net supplementary tax budget should be based on historical trends not the previous year’s activity level. Staff are currently working with the Area Treasurers to get more timely information and looking at opportunities to develop our own estimates for net supplementary taxes. Having more timely information will assist with Periodic Financial Reporting. Further consideration of supplementary tax revenue and the budget process can be discussed by Budget Committee during the 2009 budget process.

CORPORATE STRATEGIC PLAN:

This issue is aligned with the Corporate Strategic Objective to ensure all Regional programs and services are responsive, efficient, effective and accountable to the public.

FINANCIAL IMPLICATIONS:

Net supplementary taxes have been a source of financial flexibility over the years and have been used to fund working funds carried forward, the roads capital levy, and one-time and capital projects in the absence of a permanent funding source for these needs. Budgets for net supplementary taxes should be based on several years of history, consider economic cycles and lags and should utilize the sustainability principle as deficits in supplementary tax revenue could lead to an overall deficit for the Region.

OTHER DEPARTMENT CONSULTATIONS/CONCURRENCE: Nil

ATTACHMENTS:

Appendix 1 – History of Net Supplementary Tax Revenue

PREPARED BY: A. Hinchberger, Director of Financial Services, Treasury and Tax Policy

APPROVED BY: L. Ryan, Chief Financial Officer
# The Regional Municipality of Waterloo

## History of Net Supplementary Tax Revenue

<table>
<thead>
<tr>
<th>Year</th>
<th>Budget</th>
<th>Actual</th>
<th>Surplus / (Deficit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1987</td>
<td>$600,000</td>
<td>$751,993</td>
<td>$151,993</td>
</tr>
<tr>
<td>1988</td>
<td>750,000</td>
<td>1,502,310</td>
<td>752,310</td>
</tr>
<tr>
<td>1989</td>
<td>850,000</td>
<td>1,459,756</td>
<td>609,756</td>
</tr>
<tr>
<td>1990</td>
<td>1,200,000</td>
<td>1,030,742</td>
<td>(169,258)</td>
</tr>
<tr>
<td>1991</td>
<td>1,200,000</td>
<td>712,863</td>
<td>(487,137)</td>
</tr>
<tr>
<td>1992</td>
<td>700,000</td>
<td>167,979</td>
<td>(532,021)</td>
</tr>
<tr>
<td>1993</td>
<td>900,000</td>
<td>(226,996)</td>
<td>(1,126,996)</td>
</tr>
<tr>
<td>1994</td>
<td>650,000</td>
<td>6,322</td>
<td>(643,678)</td>
</tr>
<tr>
<td>1995</td>
<td>650,000</td>
<td>(765,725)</td>
<td>(1,415,725)</td>
</tr>
<tr>
<td>1996</td>
<td>650,000</td>
<td>1,322,497</td>
<td>672,497</td>
</tr>
<tr>
<td>1997</td>
<td>650,000</td>
<td>300,114</td>
<td>(349,886)</td>
</tr>
<tr>
<td>1998</td>
<td>650,000</td>
<td>1,137,682</td>
<td>487,682</td>
</tr>
<tr>
<td>1999</td>
<td>(420,000) Note 2</td>
<td>960,403</td>
<td>1,380,403</td>
</tr>
<tr>
<td>2000</td>
<td>0</td>
<td>465,365</td>
<td>465,365</td>
</tr>
<tr>
<td>2001</td>
<td>0</td>
<td>5,793,435</td>
<td>5,793,435</td>
</tr>
<tr>
<td>2002</td>
<td>0</td>
<td>6,417,296</td>
<td>6,417,296</td>
</tr>
<tr>
<td>2003</td>
<td>500,000</td>
<td>4,391,281</td>
<td>3,891,281</td>
</tr>
<tr>
<td>2004</td>
<td>800,000</td>
<td>7,200,325</td>
<td>6,400,325</td>
</tr>
<tr>
<td>2005</td>
<td>800,000</td>
<td>7,984,722</td>
<td>7,184,722</td>
</tr>
<tr>
<td>2006</td>
<td>800,000</td>
<td>6,736,288</td>
<td>5,936,288</td>
</tr>
<tr>
<td>2007</td>
<td>800,000</td>
<td>4,713,234</td>
<td>3,913,234</td>
</tr>
</tbody>
</table>

Note 1: Reassessment occurred for that tax year
Note 2: 1999 budget reduced in anticipation of appeals arising from new assessment / classification system which was implemented in 1998
Note 3: Deficit for net supplementary taxes
TO: Chair Tom Galloway and Members of the Administration and Finance Committee

DATE: May 13, 2008

FILE CODE: R04-60

SUBJECT: INFORMATION MANAGEMENT AND ARCHIVES UPDATE 2007

RECOMMENDATION:

For information.

SUMMARY:

This report is in response to a request by Members of the Committee for an update from staff regarding the Region of Waterloo Archives. The report addresses the request for information regarding:

a) what kind of requests are made to Archives staff;
b) how much material remains to be processed;
c) whether staff use the Archives and who makes requests for archived materials; and
d) whether archiving saves the Region any money.

REPORT:

The Region of Waterloo Archives forms part of the corporate Information Management and Archives program. Information Management and Archives exists to promote best practices in the management of government records and information from the point of creation for as long as required to support the needs of government and citizens. Major program goals are to:

a) control, preserve and make accessible all corporate records for as long as required;
b) provide formal support, service and training for information and records management activities;
c) ensure that archival records are preserved and readily accessible to staff and citizens and to encourage and facilitate the use of these resources;
d) to promote the role of records as evidence in supporting the rule of law and in the interests of accountable government.

While the Information Management side of the program is responsible for the day-to-day management of corporate information, the Region of Waterloo Archives is responsible for the appraisal, preservation and accessibility of corporate records for the long-term. Approximately 5-10% of all records created by the corporation are considered archival and must be carefully managed from the point of creation until either appropriately destroyed or transferred to the archives.

An effective information management infrastructure supports accountability to the public, administrative efficiency, increased productivity, better service, and cost savings. Information management is integral to corporate transparency and openness, and the ability of the corporation to meet legal requirements.

Who requests information and what kind of requests are made?
In 2007, Information Management and Archives staff responded to 659 requests for information from staff, citizens and researchers. The requests were diverse and the information was used for: business purposes, displays, educational resources, heritage projects, legal purposes, publications, site
assessments, phase 1 environmental assessments, student papers and projects, and genealogy. All departments request information from Information Management and Archives. External requests were received from associations/societies, businesses, local area municipalities, other municipalities, provincial government, federal government, primary and high school students and staff, private citizens, media, religious/cultural organizations, and university/college students and faculty. Please refer to the attached Tables 1-3.

Since 2005 there have been an increasing number of visitors to the archives website. In 2007, there were 4172 visitors to the site. Both internal and external researchers have requested that additional content to be posted on-line such as documents, photographs, exhibits and finding aids. However, with current resources only a minimal amount of information is made accessible on the website.

How much material remains to be processed and how does it impact Regional operations? The backlog of paper and electronic records that remain to be either destroyed or transferred to the Archives constitute over 10 years worth of work.

The impact of this backlog on Regional operations include the following:
- Unprocessed information is unavailable to staff and researchers. As a result, we are unable to answer questions or to find information when required.
- Money is spent searching for information or evidence elsewhere.
- Money is being spent storing information for an unnecessary length of time.
- Records are disintegrating faster and may require preservation or conservation treatments as a result.

Since the Archivist was hired, archives staff process approximately 234 boxes of records per year. The significant backlog of unprocessed records is a result of the growing annual volume of records created by the corporation. As the corporation grows the number and complexity of records requiring active management also grows. While archives staff process what they can with current resources, the number of paper records transferred to Information Management and Archives is growing by an average of 102% per year. The number of electronic records created by the corporation is growing by an average of 92% per year. With current resources archives staff are able to process 18% of the paper records accumulated annually. Procedures for processing electronic records are being developed and as a result processing statistics are unavailable. In 2007 archives staff processed 117 boxes of corporate records, 450 boxes of Township of Woolwich and Town of Elmira records, and transferred the equivalent of 720 boxes of unprocessed provincial records back to the Province. Please refer to the attached Tables 4-6.

How does the archives save the Region money? Information is a valuable asset. It is difficult to quantify the value of the Region’s information infrastructure without attempting to quantify accountability, integrity and transparency.

In the last year research conducted and access provided to archival records by archives staff contributed to costs savings by:
- providing staff with evidence of underground pipe composition that prevented unnecessary road reconstruction;
- conducting research for Legal Services that may have been otherwise contracted out saving Legal Services an estimated $14,000 in research fees;
- researching past decisions that formed background information in Committee reports; and
- finding documentation of former agreements with the Province.

Archives Highlights from 2007
- On September 19, 2006 the Council of the Township of Woolwich appointed the Region of Waterloo
as official archivist for the Township as provided for in Section 254 of the Municipal Act, 2001, S.O. 2001, as amended. Soon after, the archival records of the Township of Woolwich and Town of Elmira from 1828-present were transferred to the Archives. Between May and August, a student processed these records. The Township of Woolwich contributed funds so that additional work and archival supplies could be purchased. Previously inaccessible to researchers, the records are now safely preserved according to international archival standards. Approximately $15,000 worth of work was completed at no cost to the Region.

- The Archives Research Room was relocated from the 9th floor to the 2nd floor for improved accessibility.

- The possibility of developing a volunteer program was pursued. It was determined that due to labour agreements, we are unable to have a volunteer program for individuals other than students.

- A meeting with community stakeholders was held to determine how best to serve the community.

Projects and Plans for 2008
This year Information Management and Archives is focusing on improving electronic document management throughout the corporation and strengthening the archival program. Here are some examples of projects that are currently underway:

- ongoing electronic document management system implementation and integration (DOCS);
- renovating the archives climate-controlled vault so that a greater volume of records can be stored on-site;
- developing an emergency/disaster plan for the archives;
- processing 250 boxes of records; and
- beginning development on an Information Management Strategy and an Archives Master Plan in order to establish strategic directions to enhance the management of both current records and historical archives.

Conclusion
Information Management and Archives is an integrated program mandated with the responsibility to manage all corporate records from creation to disposal or archival preservation. It is difficult to quantify the value of information and records to the corporation and to the community. Information stored in the form of inactive or archival records constitute a large portion of the Regional corporate memory. The management of information is essential to corporate transparency and openness, service excellence, and the ability of the corporation to meet legal requirements. Information Management and Archives staff will continue to manage corporate information according to best practices within the limitations of current resources.

CORPORATE STRATEGIC PLAN:
Focus Area 6: Service Excellence by fostering a culture of citizen/customer service that is responsive to community needs.

FINANCIAL IMPLICATIONS:
The costs of storing material at the contracted off-site records centre amounted to $48,012.32 in 2007.

OTHER DEPARTMENT CONSULTATIONS/CONCURRENCE:
NIL
ATTACHMENTS

Tables 1-3, Requests Received by Information Management and Archives, 2007

Tables 4-6, Number of Boxes Processed and Received and Number of Electronic Records, 2000-2007

PREPARED BY: Charlotte Woodley, Archivist

APPROVED BY: Kris Fletcher, Director, Council and Administrative Services/Regional Clerk
Gary Sosnoski, Commissioner of Corporate Resources
Table 1: Internal Requests Received by Information Management and Archives, 2007

![Chart showing internal requests received by Information Management and Archives]

Table 2: Purposes of Research Requests Received by the Archives, 2007

![Chart showing purposes of research in archives]
Table 3: Profile of External Requests Received by the Archives, 2007
Table 4: Number of Boxes Processed by Archives Staff, 2000-2007

![Number of Boxes Processed by Archives Staff](chart1)

Table 5: Number of Boxes Transferred to Information Management and Archives, 2000-2007

![Number of Boxes Transferred to Information Management and Archives](chart2)

![Annual Number of Records Stored in the Electronic Document Management System](image-url)
TO: Chair Tom Galloway and Members of the Administration and Finance Committee

DATE: May 13, 2008

FILE CODE: A26-50(A)

SUBJECT: UPDATE - CORPORATE ENVIRONMENTAL SUSTAINABILITY STRATEGY

RECOMMENDATION:

For information.

SUMMARY:

This report contains a short update on the development of the Corporate Environmental Sustainability Strategy, and the next steps. A key component of Phase 2 of the project was recently completed and a copy of the report “Reporting the Region of Waterloo Past and Present Environmental Initiatives” has been provided separately. The report will be put on the Region’s internal and external websites to increase public and staff awareness of the Region’s environmental record and its current activities. A further report will be coming to Council in July/August timeframe outlining framework options and general principles to guide the further development of the environmental sustainability strategy.

REPORT:

Background

As part of the 2007 budget process Council approved the resources to develop a Corporate Environmental Sustainability Strategy. A core project team was established in September 2007 and subsequently six sub-committees were established with approximately 30 management staff to provide data and assistance in developing the plan. Report CR-FM-08-003 dated February 13, 2008 submitted to the Ad Hoc Environmental Advisory Committee (AHEAC) summarized the project team structure, phases and timelines, as well as next steps.

The project will be completed in four phases:

- Phase 1: Project Planning and Approval
- Phase 2: Internal/external Research
- Phase 3: Strategy development
- Phase 4: Preparation of the implementation plan

Phase 2 which is currently in progress includes: (1) a review and evaluation of environmental sustainability frameworks used around the world; (2) an inventory of past and current Regional environmental activities and their outcomes if available; (3) a review of best management practices (BMP); and (4) a gap analysis of our current efforts and the BMP of others. This phase also includes a local scan of other environmental initiatives in the community including those of local municipalities, non-profit organizations, universities and the GRCA.
Past and Present Environmental Initiatives Study

A major component of Phase 2 was the development of the inventory of past and current Regional environmental activities. This inventory was recently completed and published as a report entitled the Region of Waterloo’s “Past and Present Environmental Initiatives”. The publication of this document will raise awareness of the Region’s environmental record by providing a consolidated view of Regional environmental initiatives over the years, provide a primary reference document prior to setting sights on future targets, and set the stage for future environmental reporting to monitor progress over time. This document also clearly demonstrates the long history of the Region in implementing environmental programs which give us a strong foundation as we move forward with the development of an integrated environmental sustainability strategy.

A copy of the report Past and Present Environmental Initiatives has been forward separately to Councillors. The Executive Summary of the report is included as Appendix A. The report will be put on the Region’s web site for public information and reference in June 2008. This will be augmented by other documents as the strategy is developed.

Next Steps

The next steps and deliverables for the project are:

- **May – Jul 2008**
  - Finalize gap analysis
  - Identify priority areas needing attention
  - Draft environmental policy statement, guiding principles, and framework options
  - Obtain input on above from project team, steering committee and coordinating committees
  - Draft report to AHEAC and Regional Council

- **Aug – Oct 2008**
  - Complete baseline analysis of corporate environmental impacts (air/energy, waste and water)
  - Workshops for project subcommittee members
    - Longer range sustainability planning
    - Target setting
    - Ongoing environmental database development
  - Draft budget issue papers for priority areas identified in gap analysis essential to keep strategy moving in 2009

- **Nov 2008 – Feb 2009**
  - Finalize the strategy
  - Develop implementation plan for strategy including proposed
    - Administrative structure
    - Responsibilities and resources necessary to carry out recommended actions of strategy
  - Get feedback on draft Strategy from Region senior management and AHEAC and Council
  - Submit Corporate Environmental Sustainability Strategy to Council for approval

**CORPORATE STRATEGIC PLAN:**

The development of Corporate Environmental Sustainability Strategy directly assists in meeting one
of the Objectives in Focus Area #1 of the Strategic Focus 2007-2010, specifically “Develop an integrated approach to environmental sustainability”. This report is one of the key documents in the development of this Strategy.

FINANCIAL IMPLICATIONS:

Nil

OTHER DEPARTMENT CONSULTATIONS/CONCURRENCE:

The report "Past and Present Environmental Initiatives" was circulated to all departments for comments and editing through the sub-committees of the project team who have representatives of all departments on it, as well as the departmental coordinating committees. The report was also circulated to the Ad Hoc Environmental Advisory Committee for comment.

ATTACHMENTS

Appendix A – Executive Summary of “Past and Present Environmental Initiatives”

PREPARED BY: Ken Noonan, Director, Facilities Management & Fleet Services

APPROVED BY: Gary Sosnoski, Commissioner, Corporate Resources
APPENDIX “A

Region of Waterloo Past and Present Environmental Initiatives (May 2008)

EXECUTIVE SUMMARY

The Region of Waterloo’s Past and Present Environmental Initiatives report is the first of three reports being written as part of the development of an Integrated Environmental Sustainability Strategy for the Region of Waterloo. The need for an Integrated Environmental Sustainability Strategy is set out in the Region’s Strategic Focus 2007 – 2010 which commits the Region to “…develop and embrace environmental considerations in all of its decisions and to foster community stewardship of the natural environment.” During the past several decades the Region of Waterloo has engaged in numerous worthy environmental initiatives but without the benefit of an integrated strategy. These initiatives have built a strong foundation for sustainability, on which the Region will be building an Integrated Environmental Sustainability Strategy.

This report outlines those past and present environmental initiatives of the Region and is a critical first step in the process which will:

- raise awareness amongst Council, staff and the community by providing a consolidated view of Regional initiatives that achieve a benefit to the natural environment;
- develop a primary reference document for Regional environmental initiatives enabling staff to take stock of past and current achievements prior to setting sights on future targets;
- set the stage for future environmental performance reporting as an ongoing mechanism to monitor progress over time, and;
- show the Region’s commitment and leadership in this area.

The three reports being prepared as part of the development of Environmental Strategy are:

2. Preliminary Recommendations - guiding principles and framework options for a Regional Environmental Sustainability Strategy (July 2008)
3. An Integrated Environmental Sustainability Strategy (February 2009) – a comprehensive approach to pursue Regional Environmental Excellence corporate-wide and to pursue the Region’s Mission: of providing “…innovative leadership and services essential to creating a inclusive, thriving and sustainable community.”

With the assistance of approximately thirty representatives from Regional management and staff, this report lists over 70 different initiatives that help reduce environmental impacts from Regional operations and community activities delivered through Regional programs and services. This list is not exhaustive and does not capture every single initiative. For purposes of preparing this report some aggregation or summaries were developed to condense the immense amount of detail available. Highlights of these achievements include:
• Lowest water consumption per person of any major municipality in Canada (335 litres per day)
• 49,000 toilets replaced with low flow versions since 1994
• An annual reduction of 1288 tonnes of air pollutants/GHG from switching to cleaner fuels and installation of advanced pollution control equipment on Regional fleet vehicles since 2003/2004;
• Ridership on Grand River Transit has increased 52% since 1999
• Generation of enough electricity to power 4,000 homes annually using methane from the Waterloo Landfill
• LED conversion of traffic lights in 2006/2007 resulted in a 70% reduction in electricity
• 39,000 incandescent lights replaced with low compact fluorescents in 2550 community housing units
• road salt reduced by 35% from 2000 to 2006
• amount of land protected as Environmentally Sensitive Landscapes doubled in last three years to 17,000 acres
• 94 kilometers of new bike lanes established since 2001
• 43% of waste diverted annually from landfill towards recycling and reuse programs
• 20 kW photovoltaic system installed in 2004.

For the complete list of initiatives captured in this report, please refer to the summary table in Appendix A. Included below is a summary list of environmental initiatives from each of the six categories outlined in this report along with some insights on trends and future opportunities:

Transportation
- Utilizing more fuel efficient vehicles within the Regional fleet
- Expansion of the Grand River Transit fleet and service enhancements
- Purchase of hybrid-electric buses and cars
- Specialty Transit Pass programs for employers and post-secondary schools
- Educational programs with elementary schools
- Improvement of transportation infrastructure such as the Regional Cycling Network.

Trends and future opportunities:
- The Region remains committed to expanding the Grand River Transit fleet.
- The advancement towards ridership and modal shift targets remains a high priority for the Region.
- Transportation infrastructure is recognized as an integral part of growth management in this region within a sustainability context.
- Commitment to prepare a Green Fleet Strategy in 2008
- Ensuring the Rapid Transit Initiative meets its full potential

Water Conservation, Efficiency and Protection
- Continuing implementation of effective residential and ICI water conservation and efficiency programs
- Ongoing management of resource protection initiatives such as the Rural Water Quality Program and Municipal road salt reduction
- Monitoring water consumption and wastewater flows to optimize use of existing infrastructure
Trends and future opportunities:

- Implementation of updated Water Resource Protection and Water Efficiency Master Plans
- Extension of Rural Water Quality Program
- Expansion of the water efficiency program for industrial commercial and institutional organizations
- Formalized tracking and reporting of water use from Regional Facilities will be initiated in 2008 and programs developed to reduce water consumption

Waste Reduction and Management

- Implementing successful community waste diversion programs including green bin pilot program
- Optimizing re-use programs (e.g. yard waste for compost, Habitat for Humanity)
- Ensuring Hazardous materials management and resource protection via a certified Environmental Management System
- Improving waste diversion at Regional Administrative Headquarters
- Providing education and communications such as the EnviroNews, and the Waste Reduction Customer Service Centre

Trends and future opportunities:

- The expansion of the Green Bin Program for organic waste within both the community and Regional corporate facilities
- The reduction of plastic bags and packaging waste
- Additional waste audits at Regional facilities

Energy Management and Facility Operations:

- Harnessing renewable sources of energy such as landfill gas, solar and wind power
- Ongoing upgrades in lighting and HVAC systems at the Region’s corporate buildings,
- Implementing significant technology conversions such as use of LED traffic signals
- The Region’s energy, water and fuel consumption will be measured using a newly purchased information management system.
- Establishment of the Corporate Energy Conservation Office

Trends and future opportunities:

- Installation of renewable energy sources
- Conversion of streetlights to more energy efficient LED lights;
- Energy reduction in Waterloo Region Housing units
- Collecting performance data on the Region’s energy, water and fuel consumption will remain a priority.

Facility Construction and Materials Management:

- Construction of Regional Facilities to Leadership in Environmental and Energy Design (LEED) silver/gold standards;
- Implementing best practices in road construction for resource conservation
- Managing material inputs with the Region’s corporate green purchasing program
- Establishment of on-line auction site to sell items for reuse rather than landfilling them
Trends and future opportunities:
- Commitment to LEED standards for all new facilities
- Future enhanced staff education on green procurement principles

Community Development and Environmental Preservation
- Rewriting the Regional Official Policies Plan
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- Pursuing sustainability within Community Food Systems
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- Preservation of natural areas and biodiversity with designations such as Environmentally Sensitive Lands (ESL’s)
- Delivering effective community based social marketing campaigns towards reduction of environmental impacts to air land and water;

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- Expansion of local food system and making purchasing local food more convenient
- Public engagement to encourage community involvement in developing healthy development policies, strategies and actions
- Expansion of protected lands
- New forms in the Region’s Official Plan including intensification and compact neighbourhood design

In addition to the above highlights and achievements, Table 1 provides an overview of some notable ‘firsts’ that were reported on whereby the Region pioneered new or innovative approaches, policies and programs.

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In addition to this report, the Integrated Environmental Sustainability Strategy development process includes other components such as:

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- development of guiding principles which help identify and prioritize future actions, and;
- long-range planning and solidifying an implementation process.

The final strategy will be submitted to Regional Council early in 2009 for their consideration. This will include recommendations for ongoing monitoring of progress and reporting.
Reporting the Region of Waterloo’s

Past and Present Environmental Initiatives

Towards Regional Environmental Excellence

Region of Waterloo

May 2008
For more information about this report or regarding the Region of Waterloo’s Environmental Sustainability Strategy, please contact the Project Team by email: sustainability@region.waterloo.on.ca or call 519-575-4706.
Acknowledgements

The initiatives contained in this report represent the work of approximately 3000 Regional staff, often in collaboration with community partners, over the last few decades. This report, a testament to this innovative and valued work, was put together with a collaborative effort from approximately 30 committee members across the organization assisting with the Region of Waterloo’s Environmental Sustainability Strategy development process. These members are:

Jim Archibald  Director, Waste Management
Phil Bauer  Head, Environmental Engineering, Design and Construction
Brian Bechtel  Corporate Energy Specialist
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Jorge Cavalcante  Manager, Water Services Engineering and Planning
Lenore Drahushchak  Manager, Water Services Environmental Enforcement & Labs
Rick Ellig  Manager, Fleet Services
Kari Feldman  Senior Project Manager, Environment
Henry Garcia  Director, Environmental Health & Lifestyle Resources
Steve Gombos  Manager, Water Efficiency
Chris Gosselin  Manager, Environmental Planning, Community Planning
Eric Hodgins  Manager, Water Resource Protection
John Hammer  Director, Transportation
Albert Hovingh  Environmental Planner, Community Planning
Cari Howard  Project Manager, Waste Collection and Diversion
Nancy Kodousek  Director, Water Services
Gerry Lichty  Manager of Facilities Maintenance and Operations
Kathy Long  Manager, Business Services, Facilities
Keith Lucas  Director, Housing Administration
Roger Mayo  Manager of Operations, Emergency Medical Services
Peggy Mellor  Director, Employee and Organizational Effectiveness
Ken Noonan  Director, Facilities Management and Fleet Services
Irwin Peters  Manager, Waterloo Regional Housing Administration
Doug Quibell  Manager, Environmental Health
David Roewade  Environmental Sustainability Planner
Ed Switenky  Manager, Transportation Operations
Theresa Schumilas  Director, Health Determinants, Planning & Evaluation
John Thomson  Manager, Network Systems, Information Technology
Graham Vincent  Director, Transportation Planning
Olga Vrentzos  Manager, Water Services Operations and Maintenance
Charles Whitlock  Chief Purchasing Officer, Purchasing
Peter Zinck  Assistant Director, Transit Services

Many other staff have contributed information or time to the development of this report including: Tom Bird, Andrea Buckley, Laura Burke, John Cicuttin, Colleen Cooper, Tessa Cooper, Elaine Feltz, Cathy Huber, Leanne Lobe, Dave Lukezich, Ellen McGaghey, JoAnn Woodhall. Special thanks to Tania Del Matto and Linda Varangu of My Sustainable Canada and Chris Turner of Toromont Industries. Also acknowledged are the Commissioners and Regional CAO who have provided feedback on the report and guidance on the strategy development process to date.
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<th>Description</th>
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<tbody>
<tr>
<td>ASRTS</td>
<td>Active and Safe Routes to School</td>
</tr>
<tr>
<td>CFC</td>
<td>Chlorofluorocarbons</td>
</tr>
<tr>
<td>CO2</td>
<td>Carbon Dioxide</td>
</tr>
<tr>
<td>CO2e</td>
<td>Carbon Dioxide Equivalents</td>
</tr>
<tr>
<td>EEMS</td>
<td>Energy and Environmental Management System</td>
</tr>
<tr>
<td>EMS</td>
<td>Environmental Management System</td>
</tr>
<tr>
<td>ESL</td>
<td>Environmentally Sensitive Landscapes</td>
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<tr>
<td>ESPA</td>
<td>Environmentally Sensitive Policy Areas</td>
</tr>
<tr>
<td>E-waste</td>
<td>Electronic Waste</td>
</tr>
<tr>
<td>GHG</td>
<td>Greenhouse Gases</td>
</tr>
<tr>
<td>GIS</td>
<td>Geographic Information System</td>
</tr>
<tr>
<td>GRCA</td>
<td>Grand River Regional Conservation Authority</td>
</tr>
<tr>
<td>GRT</td>
<td>Grand River Transit</td>
</tr>
<tr>
<td>HVAC</td>
<td>Heating, Ventilation and Air Conditioning</td>
</tr>
<tr>
<td>ICAC</td>
<td>Interdepartmental Clean Air Committee</td>
</tr>
<tr>
<td>ICI</td>
<td>Institutional, Commercial, Industrial</td>
</tr>
<tr>
<td>ISO</td>
<td>International Standards Organization</td>
</tr>
<tr>
<td>kWh</td>
<td>Kilo Watt Hour</td>
</tr>
<tr>
<td>LED</td>
<td>Light Emitting Diode</td>
</tr>
<tr>
<td>LEED®</td>
<td>Leadership in Energy and Environmental Design</td>
</tr>
<tr>
<td>LTWS</td>
<td>Long-Term Water Strategy</td>
</tr>
<tr>
<td>M3/d</td>
<td>Cubic metres of water consumption per day</td>
</tr>
<tr>
<td>O3</td>
<td>Ozone</td>
</tr>
<tr>
<td>PM</td>
<td>Particulate Matter</td>
</tr>
<tr>
<td>RFMP</td>
<td>Regional Forest Management Plan</td>
</tr>
<tr>
<td>RGMS</td>
<td>Regional Growth Management Strategy</td>
</tr>
<tr>
<td>ROPP</td>
<td>Regional Official Policies Plan</td>
</tr>
<tr>
<td>ROW</td>
<td>Regional of Waterloo</td>
</tr>
<tr>
<td>TDM</td>
<td>Transportation Demand Management</td>
</tr>
<tr>
<td>ULSD</td>
<td>Ultra-Low Sulphur Diesel</td>
</tr>
<tr>
<td>U-pass</td>
<td>Universal Transit Pass</td>
</tr>
<tr>
<td>WRPCPA</td>
<td>Waterloo Region Partners for Clean Air</td>
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EXECUTIVE SUMMARY

The Region of Waterloo’s Past and Present Environmental Initiatives report is the first of three reports being written as part of the development of an Integrated Environmental Sustainability Strategy for the Region of Waterloo. The need for an Integrated Environmental Sustainability Strategy is set out in the Region’s Strategic Focus 2007 – 2010 which commits the Region to “…develop and embrace environmental considerations in all of its decisions and to foster community stewardship of the natural environment.” During the past several decades the Region of Waterloo has engaged in numerous worthy environmental initiatives but without the benefit of an integrated strategy. These initiatives have built a strong foundation for sustainability, on which the Region will be building an Integrated Environmental Sustainability Strategy.

This report outlines those past and present environmental initiatives of the Region and is a critical first step in the process which will:

- raise awareness amongst Council, staff and the community by providing a consolidated view of Regional initiatives that achieve a benefit to the natural environment;
- develop a primary reference document for Regional environmental initiatives enabling staff to take stock of past and current achievements prior to setting sights on future targets;
- set the stage for future environmental performance reporting as an ongoing mechanism to monitor progress over time, and;
- show the Region’s commitment and leadership in this area.

The three reports being prepared as part of the development of Environmental Strategy are:

2. Preliminary Recommendations - guiding principles and framework options for a Regional Environmental Sustainability Strategy (July 2008)
3. An Integrated Environmental Sustainability Strategy (February 2009) – a comprehensive approach to pursue Regional Environmental Excellence corporate-wide and to pursue the Region’s Mission: of providing “…innovative leadership and services essential to creating a inclusive, thriving and sustainable community.”

With the assistance of approximately thirty representatives from Regional management and staff, this report lists over 70 different initiatives that help reduce environmental impacts from Regional operations and community activities delivered through Regional programs and services. This list is not exhaustive and does not capture every single initiative. For purposes of preparing this report some aggregation or summaries were developed to condense the immense amount of detail available. Highlights of these achievements include:

- Lowest water consumption per person of any major municipality in Canada (335 litres per day)
- 49,000 toilets replaced with low flow versions since 1994
- An annual reduction of 1288 tonnes of air pollutants/GHG from switching to cleaner fuels and installation of advanced pollution control equipment on Regional fleet vehicles since 2003/2004;
- Ridership on Grand River Transit has increased 52% since 1999
• Generation of enough electricity to power 4,000 homes annually using methane from the Waterloo Landfill
• LED conversion of traffic lights in 2006/2007 resulted in a 70% reduction in electricity
• 39,000 incandescent lights replaced with low compact fluorescents in 2550 community housing units
• road salt reduced by 35% from 2000 to 2006
• amount of land protected as Environmentally Sensitive Landscapes doubled in last three years to 17,000 acres
• 94 kilometers of new bike lanes established since 2001
• 43% of waste diverted annually from landfill towards recycling and reuse programs
• 20 kW photovoltaic system installed in 2004.

For the complete list of initiatives captured in this report, please refer to the summary table in Appendix A. Included below is a summary list of environmental initiatives from each of the six categories outlined in this report along with some insights on trends and future opportunities:

**Transportation**
- Utilizing more fuel efficient vehicles within the Regional fleet
- Expansion of the Grand River Transit fleet and service enhancements
- Purchase of hybrid-electric buses and cars
- Specialty Transit Pass programs for employers and post-secondary schools
- Educational programs with elementary schools
- Improvement of transportation infrastructure such as the Regional Cycling Network.

**Trends and future opportunities:**
- The Region remains committed to expanding the Grand River Transit fleet.
- The advancement towards ridership and modal shift targets remains a high priority for the Region.
- Transportation infrastructure is recognized as an integral part of growth management in this region within a sustainability context
- Commitment to prepare a Green Fleet Strategy in 2008
- Ensuring the Rapid Transit Initiative meets its full potential

**Water Conservation, Efficiency and Protection**
- Continuing implementation of effective residential and ICI water conservation and efficiency programs
- Ongoing management of resource protection initiatives such as the Rural Water Quality Program and Municipal road salt reduction
- Monitoring water consumption and wastewater flows to optimize use of existing infrastructure

**Trends and future opportunities:**
- Implementation of updated Water Resource Protection and Water Efficiency Master Plans
- Extension of Rural Water Quality Program
- Expansion of the water efficiency program for industrial commercial and institutional organizations
- Formalized tracking and reporting of water use from Regional Facilities will be initiated in 2008 and programs developed to reduce water consumption
Waste Reduction and Management
- Implementing successful community waste diversion programs including green bin pilot program
- Optimizing re-use programs (e.g. yard waste for compost, Habitat for Humanity)
- Ensuring Hazardous materials management and resource protection via a certified Environmental Management System
- Improving waste diversion at Regional Administrative Headquarters
- Providing education and communications such as the EnviroNews, and the Waste Reduction Customer Service Centre

Trends and future opportunities:
- The expansion of the Green Bin Program for organic waste within both the community and Regional corporate facilities
- The reduction of plastic bags and packaging waste
- Additional waste audits at Regional facilities

Energy Management and Facility Operations:
- Harnessing renewable sources of energy such as landfill gas, solar and wind power
- Ongoing upgrades in lighting and HVAC systems at the Region’s corporate buildings,
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The effort that went into summarizing these initiatives and results (where available) has identified some challenges to consider for future reports. Data gaps significantly impair the ability to monitor progress over time which consequently affects what can be reported quantitatively. Some of this data may not have been collected at the introduction of an initiative and therefore new data collection efforts may need to be initiated. Additionally, as the Region grows in size, there will be challenges achieving improvements in areas that are directly linked to growth. How the data are reported, such as efficiency improvements versus absolute reductions in environmental impact as provided within this report, will assist the Region in further defining priority areas.
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- development of guiding principles which help identify and prioritize future actions, and;
- long-range planning and solidifying an implementation process.

The final strategy will be submitted to Regional Council early in 2009 for their consideration. This will include recommendations for ongoing monitoring of progress and reporting.
1.0 INTRODUCTION

1.1 Background

The Region of Waterloo is one of the largest employers in the region and directly employs over 3,000 people and indirectly employs thousands of other citizens who provide contract services. Owning over 4,600,000 square feet of building space and approximately 1,000 vehicles, the Region directly consumes nearly ten million litres of fuel for vehicles, 130,000 megawatts of electricity and eight million cubic metres of natural gas annually in delivering services to the residents of the region such as:

- Water Supply and Wastewater Operations
- Waste Management
- Police and Emergency Medical Services
- Public Health
- Social Services including Child Care and Senior’s Services
- Regional Roads and Traffic Signals
- Public Transit and Specialized Transit
- Social Housing
- Heritage sites and the Rural Library System
- Waterloo Region International Airport
- Provincial Offences Court and Licensing and Enforcement
- Community Planning

The consumption of natural resources used in delivering these services to the public has a direct environmental impact on the quality of the air we breathe, the water we drink and on the land we grow our food as well as impacts on the quantity of non-renewable resources available for future generations.

The Region has been very conscious of this impact and over the last several decades devoted substantial resources to eliminate, reduce or mitigate the effect of their activities on the environment around us. These initiatives have built a strong foundation of environmental expertise and best practices in the Region. This environmental leadership will be further advanced by developing an integrated environmental strategy as outlined below.

1.2 Development of the Region of Waterloo Integrated Environmental Sustainability Strategy

The Region’s Strategic Focus 2007-2010 envisages a region which “… will be an inclusive, thriving and sustainable community committed to maintaining harmony between rural and urban areas and fostering opportunities for current and future generations.” To achieve this vision, the Region's strategic plan includes six interconnected Focus Areas which are illustrated in Figure 1. Collectively these focus areas address quality of life elements such as a healthy community and natural environment, economy prosperity as well as cultural diversity.

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*a Approximate figures as of year-end 2007.*
The focus of the Environmental Sustainability area is primarily on ensuring a healthy natural environment now and in the future which by necessity overlaps with many of the other Focus Areas particularly Infrastructure, Growth Management and Healthy and Safe Communities. The need for a balanced interrelationship between these elements is often referred to as “sustainability”, a term further examined in section 1.4 of this report.

Each of these six Focus Areas contains numerous Strategic Objectives which identify “what” the Region is trying to accomplish. These Objectives are further broken down into Action items which identify “how” the Region will achieve the Objective. For the Focus Area, Environmental Sustainability five Objectives identified were:

1. Develop an integrated approach to environmental sustainability;
2. Improve air quality in Waterloo Region;
3. Effectively use and manage energy resources;
4. Reduce the amount of waste requiring landfill; and
5. Protect the quality and the quantity of our water sources
The first objective contains several action items, one of which is to develop an environmental sustainability strategy for the Region of Waterloo. It is expected that this strategy will establish processes to enable all Regional activities and decisions to be assessed as to their impact on the environment and what, if any, mitigating actions can be taken to reduce or eliminate that impact. It is also expected that the strategy will provide:

- an overarching framework and guiding principles to assist in the above assessment
- a gap analysis of current environmental efforts to assist in the identification of areas of improvement in operations, programs and services
- processes to prioritize environmental initiatives based on their outcomes
- processes to help identify opportunities for integrating environmental initiatives to enhance their impact
- a database and processes to update it for all environmental activities
- reporting categories and progress indicators to provide improved environmental reporting to Council and the community

The development of the environmental sustainability strategy is in line with the concerns of local citizens who have identified environmental protection and preservation as one of the government’s top priorities in a recent public survey addressing strategic planning priorities.

1.3 Purpose of this Report

This report is the first of three reports in the development of an Environmental Sustainability Strategy. The three reports are:

- Region of Waterloo’s Past and Present Environmental Initiatives (April 2008)
- Preliminary Recommendations - Guiding Principles and Framework for an Environmental Strategy (June/July 2008)
- An Integrated Environmental Strategy (February 2009)

This report outlines the past and current environmental initiatives of the Region and is a critical first step in the process which will:

- raise awareness amongst Council, staff and the community by providing a consolidated view of Regional initiatives that achieve a benefit to the natural environment;
- provide a primary reference document for Regional environmental initiatives enabling staff to take stock of past and current achievements prior to setting sights on future targets;
- set the stage for future environmental performance reporting as an ongoing mechanism to monitor progress over time, and;
- show the Region’s commitment and leadership in this area.

Other aspects of the environmental strategy development which will further enhance public reporting of the Region’s sustainability efforts in the future include baseline environmental impact analysis, ongoing development of progress indicators along with benchmarking and target setting.
1.4 What is Environmental Sustainability?

With this document the Region has embarked on the development of an Environmental Sustainability Strategy. But what is environmental sustainability? It is widely recognized today that a healthy environment is essential for both healthy communities and economic prosperity for present and future generations. In recent decades, this has also been referred to as sustainability or sustainable development. The following section provides a brief discussion about sustainability and the environment to place this endeavour in context.

Scientists from around the world identify human impacts as the most significant force altering the face of this planet, a claim that climatologists support as the evidence shows we are actually changing the earth’s climate. Since the industrial revolution and the near quadrupling of the world’s population in the twentieth century, the rate of environmental degradation has accelerated in many areas. Examples include:

- the rate of non-renewable resource use such as oil and minerals;
- air pollution, in particular ground-level ozone, particulates and greenhouse gases (GHG);
- pollution of surface and groundwater resources and water shortages;
- urban sprawl, land pollution and pressures on sensitive ecological landscapes, and;
- the warming of the earth due to the rapid increase in GHG related to human activities (often referred to as climate change).

Consumption Versus Availability of Natural Resources. From the perspective of comparing the biological capacity of the planet to the rate of consumptive human activity, the difference between what we use and what is available on a global scale simply cannot be sustained indefinitely. This “ecological footprint” perspective is based on available natural resources relative to resource consumption rates. Currently, if the entire world population had the same consumption lifestyle as North Americans, it would take four planets to accommodate the global population demand for the Earth’s resources.

Using this model, countries and even municipalities have been compared by the footprint of their current practices. Canada has the third highest ecological footprint with an average resources consumption rate for each Canadian at nearly four times what is available to each person throughout the world. Waterloo Region has a very similar ecological footprint as the national average.

Climate Change. Over the past several decades, the international community has collectively identified and worked on numerous environmental issues of global concern. These initiatives include reduction of ozone depleting chemicals, reducing persistent organic pollutants and climate change. Although climate change has recently become the platform where the greatest shared concern and need for action has been debated, it is still only a subset of the broader need for environmental sustainability.

Sustainable Development. Following the World Commissions meeting on the Environment and Development, in 1987, the Bruntland report, *Our Common Future* (1987) was issued. It provided the following widely accepted definition of sustainability: “..... to ensure development meets the needs of the present without compromising the ability of future generations to meet their own needs.” Shortly after the Bruntland report, a prominent World Bank economist proposed three operational rules to achieve a sustainable state of development. They are:
• renewable resources must be consumed at a rate no greater than they can be generated;
• non-renewable resources must be used no faster than renewables can be put in place as substitutes, and;
• pollution wastes must be emitted at a rate within the assimilative capacity of the natural systems that absorb, recycle or render them harmless.  

Sustainability Challenge. These operational rules are similar to other views of the sustainability challenge as illustrated in Figure 2 by The Natural Step organization where the walls of a funnel (i.e. life sustaining resources are in decline while society’s demand for these resources is increasing) are used to metaphorically depict the diminishing room humanity has to maneuver. Some estimates on climate change place the room to manoeuvre as short as eight years before irreversible harm to the environment occurs; other estimates for oil and other non-renewable resources have greater windows of manoeuvre of 50 to 100 years.

![Figure 2. The Sustainability Challenge](www.naturalstep.ca/funnel.html)

In identifying what the journey towards environmental sustainability looks like, it is useful to think of a continuum, where actions and initiatives develop over time as society moves to embrace them. What was considered environmentally responsible in the 1970’s and 80,s for example, with an emphasis on waste disposal, is now considered outdated, and replaced with not just waste recycling, but the practice of reducing that waste from being produced in the first place.

1.5 Scope of the Integrated Environmental Sustainability Strategy

As a key objective in the recently approved Region of Waterloo’s Corporate Strategic Focus, it is important to understand the scope of the proposed integrated environmental sustainability strategy in order to view this work with a suitable lens. The proposed Integrated Environmental Sustainability Strategy is an inward focused plan which spans all Regional activities including corporate operations as well as programs and services provided to the community.
Although it is not a Community Environmental Plan, the strategy encompasses Regional activities that influence the community’s impact on the environment such as in areas of water consumption and waste reduction. Figure 3 illustrates the conceptual relationship between the Corporate Environmental Strategy envisaged by this project and the broader community framework which includes other local municipalities, private businesses, non-government groups, hospitals and community members and residents.

The core of this diagram is where the Region has the most influence - over its own operations. In this sphere the Region identifies and selects the resource inputs and equipment it will use to deliver its services, and how it will deliver them. For example, the number and type of vehicles it uses, the design and construction of its buildings and how they will be operated and maintained. This includes all of the electricity, fuel and material used in their operation as well as the environmental impacts that resource use entails.

The next sphere encompasses the various Regional programs and services delivered to the broader community. Again there are a wide variety of resource needs pertaining to this sphere such as design and operation of pumping and water treatment facilities, waste collection and recycling services as well as plans and policies which shape the community such as land use planning.
As the circles move out towards the broader community framework the Regional influence changes as it includes the valuable role that other stakeholders in the community play in ensuring environmental sustainability. Regional mechanisms for influencing this sphere include target setting in areas such as water efficiency/conservation, waste diversion and transit modal shift, all which require broad support and participation throughout the local community.

### 1.6 Role of Municipalities in Addressing Environmental Sustainability

In accepting the essential role that a healthy environment plays in supporting the viability of our communities and resource based economy, all orders of government, including municipalities can significantly contribute to the required sustainability shift that is discussed above. Due to their day-to-day proximity to people and influence on communities, innovative municipal leadership can help protect the environment, enhance community quality of life while still fostering a prosperous and equitable economy.6

Internationally, cities around the world have adopted the ‘Melbourne Principles’7 which build upon the definition of sustainable development identified in the Bruntland Commission report, and are intended to guide thinking and provide a strategic framework for action at the municipal level. In Canada, the Federation of Canadian Municipalities has identified a number of policy statements and strategies to guide sustainable development within communities in the document ‘Policy Statement on Environmental Issues and Sustainable Development.’8 Translating these policies and principles into action, which meets the needs at the local level, will be the challenge for local municipalities.

One of the identified actions under the Environmental Sustainability Strategy objectives is to develop a database of the Region’s environmental initiatives and, in an appropriate manner, indicate the aggregate effect of these initiatives to reduce the impact on our surrounding natural resources. While the Region has already put forth a significant effort in environmental protection, the full breadth and impact of these actions are not widely known throughout the community or even within the organization. The publication of this report and the setting of targets and providing regular updates will show leadership in this critical area and enable the Region to more effectively promote community wide action on the environment.

### 1.7 Context and Limitations

The scope of sustainability, as previously described, is focused on the natural environment with some interface encountered with the socio-economic spheres. However, within this context, there are other areas of the Region’s Strategic Focus that also have an impact on the environment but more directly address the economic and community areas of this broad community framework, such as:

- **Focus Area 2: Growth Management**, which influences and “shapes growth to ensure a livable, healthy, thriving and sustainable Waterloo Region”
- **Focus Area 3: Healthy and Safe Communities**, which supports safe and caring communities that includes improving “health by reducing or preventing the environmental and social conditions or behaviours that lead to poor health and/or disparity”
- **Focus Area 5: Infrastructure**, focusing on providing “high quality infrastructure and asset management to meet current needs and future growth” while including environmental considerations throughout development and implementation.
Although there are several initiatives under these focus areas that include a sustainability component, the environmental reporting included in this document does not preclude nor completely duplicate other forms of formal reporting mechanisms but rather offers a consolidated view of Regional initiatives that achieve a benefit to the natural environment.

Within many Regional program areas there are other types of reporting containing environmental information for a wide variety of purposes and target audiences. For example, there have been a series of reports associated with the Rapid Transit EA as well as the Regional Growth Management Strategy. Both of these endeavors, while broad in scale, have a much more defined and focused scope that will help this community develop sustainability over the coming years of significant population growth.

Similarly, infrastructure master plans addressing waste, water and transportation are focused on sustaining a high level of services and quality of life as anticipated population growth places greater demand on various Regional operations, programs and services. Many of the initiatives are included in this report, while subcomponents of these larger plans, are more directly focused on Regional efforts in lessening the environmental impact of that increasing demand. The work of the master plans provides a good foundation for ongoing monitoring in areas such as waste diversion, water consumption and growth of the sustainable transportation network.

Information included in this report is derived from a variety of existing reports and organized in a manner to give the reader an overview of the achievements of Regional environmental initiatives. Approximately thirty representatives from Regional management and staff are participating in seven different working groups and advisory committees to assist with the strategy development and have been invaluable in compiling this information. However, not every single initiative can be captured in this document and that is where some aggregation or summaries were developed in order to condense the immense amount of details from the inventory on environmental initiatives.

It should also be noted that this reporting effort is not an attempt to provide a state of the environment report which assesses environmental conditions. Nor is this an environmental/community health report that looks at key indicators of environmental and public health.\(^b\)

### 1.8 Report Format

The initiatives included in this report are organized by six main categories and include both actions that affect the Regional corporate environmental performance (e.g. energy and GHG reduction in Regional facilities) as well as the community environmental impact (e.g. expansion of the residential recycling program).

At the beginning of each category is a brief description of what is included and excluded in the category as well as a general explanation of how activities in this category affect the environment. Five symbols are used to indicate the type of benefit at the beginning of the description for each initiative. These categories and symbols are listed Figure 4.

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\(^b\) A related activity is planned within the Region’s Strategic Focus Area #3 and aims to publish reports on the health impacts associated with selected environmental and social conditions.
Data management has proven to be one of the most challenging aspects of environmental reporting of this type as there are a multitude of sources, formats and metrics used by each department depending on the initiative and the resources that it affects. Data is only included on initiatives if it was complete and clearly indicated the environmental benefit achieved.

This report includes initiatives that affect both corporate environmental performance (i.e. from Regional operations), and where possible, community environmental impacts (e.g. residential waste, community water use) and are indicated accordingly at the beginning of their description. Ease of collection and availability are also factors for consideration in the ongoing use of data to indicate environmental progress. For those initiatives that did not have clear environmental benefit data available, a qualitative description or listing is included.

<table>
<thead>
<tr>
<th>Reporting Categories:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transportation</td>
</tr>
<tr>
<td>Water Conservation and Protection</td>
</tr>
<tr>
<td>Waste Management</td>
</tr>
<tr>
<td>Energy Reduction and Facilities Operations</td>
</tr>
<tr>
<td>Facility Construction and Materials Management (includes green purchasing)</td>
</tr>
<tr>
<td>Community Development and Environmental Preservation</td>
</tr>
</tbody>
</table>

**Symbols**

- Air
- Land
- Water
- Education/Partnerships
- Material Resource Use

*Figure 4. Organization and symbols used within the environmental initiatives report*
2.0 ENVIRONMENTAL INITIATIVES BY CATEGORY

The categories used to organize the initiatives included in this report are largely based on functions as opposed to departments. As such the data collection was largely conducted via cross-departmental subcommittees focused on a particular function (i.e. facility construction/maintenance, fleet management). The initiatives inventory should not however be considered an exhaustive list yet it does represent highlights of this data collection effort.

Effort was made to link either qualitative or quantitative information to the initiatives so that the reader can gain a better understanding of the breadth and significance of environmental actions implemented by the Region of Waterloo. The following sections are a result of this effort.

2.1 Transportation

The Region is currently embarking on a process to revise the Transportation Master Plan in response to steady growth in the community and the recognition that the efficient movement of people and goods has become an increasingly more important and challenging issue. Current commitments include: creating transportation choice to encourage environmentally sustainable modes of transportation, maximizing investment in the existing infrastructure, and identifying opportunities for improved infrastructure.

The main master plans and supplemental strategies which set transportation targets in the Region are:

- The Regional Transportation Master Plan (1999):
  - Share of automobile travel to be reduced from 84% to 77% by year 2016
  - 7% reduction in automobile travel during peak hours by year 2016
  - Transit modal share up to 7% by year 2016 (from 5%)

- The Regional Cycling Master Plan (2004):
  - long-term goal of building the network to reach 732 kilometers over the next several decades

- Other transit related targets:
  - 4.5% increase in ridership per year
  - Long-term target for ridership of 19.7 million (2016)

In 1999, the Region of Waterloo assumed responsibility of transit services and on January 1 2000 the Region established Grand River Transit (GRT). Transit initiatives move residents from private automobiles to more efficient public mass transit and, in providing this service, the Region consumed nearly seven million litres of fuel in 2007 for over 200 transit buses. Additionally, Regional fleet vehicles consume approximately 3 million litres of fuel annually to deliver such services as police, ambulances, maintenance of water facilities, snow clearing and corporate support services. A wide range of initiatives are underway in this area to improve fuel efficiency and reduce air emissions.
The common environmental impacts within this category concern our air quality resulting from exhaust emissions from motorized vehicles, and use of non-renewable resources such as fuel and oil. Vehicular exhaust is an important local air emission source which can affect both ground level ozone and smog issues as well as GHG and climate change. Using 2001 data, it is estimated that 67% of all air emissions from Regional operations came from fleet and transit vehicles.  

A summary list of Regional Transportation initiatives are provided in Table 2. Some transportation related initiatives are reported in other relevant sections. Traffic signals on regional roads are addressed under the energy reduction section. Roads and road salt are also addressed in other sections of this report, Sections 2.5.1 and 2.2.1 respectively.  

It is noted that the Rapid Transit Environmental Assessment (RTEA) is excluded from the scope of this report since it is in the Environmental Assessment stage. The RTEA is currently in the process of route selection and, once implemented, Rapid Transit is expected to improve the Region’s transportation network by providing more environmentally sustainable modes of travel within Waterloo Region. This significant initiative will also contribute to the Region’s Growth Management Strategy and will be highlighted as appropriate in future reports. (*See below.)

<table>
<thead>
<tr>
<th>Initiative</th>
<th>Level of Detail Provided</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Listed only</td>
</tr>
<tr>
<td>ROW Corporate Fleet Management</td>
<td></td>
</tr>
<tr>
<td>Fuel switching</td>
<td>X</td>
</tr>
<tr>
<td>Pollution control equipment</td>
<td>X</td>
</tr>
<tr>
<td>Hybrid electric buses</td>
<td>X</td>
</tr>
<tr>
<td>Greening the Fleet</td>
<td>X</td>
</tr>
<tr>
<td>Smart Driver training</td>
<td>X</td>
</tr>
<tr>
<td>Transportation Demand Management</td>
<td>X</td>
</tr>
<tr>
<td>Use of Bike Courier</td>
<td>X</td>
</tr>
<tr>
<td>Employer Initiatives</td>
<td>X</td>
</tr>
<tr>
<td>Active &amp; Safe Routes to School</td>
<td>X</td>
</tr>
<tr>
<td>School Curriculum - You Can Clear the Air</td>
<td>X</td>
</tr>
<tr>
<td>Transit Service Enhancements</td>
<td>X</td>
</tr>
<tr>
<td>GRT Service Improvements</td>
<td>X</td>
</tr>
<tr>
<td>iXpress Service Expansion</td>
<td>X</td>
</tr>
<tr>
<td>Transit Specialty Pass Programs</td>
<td>X</td>
</tr>
<tr>
<td>GRT Fare Discounts on Clean Air Day (2004-2007)</td>
<td>X</td>
</tr>
<tr>
<td>Transportation Infrastructure and Planning</td>
<td></td>
</tr>
<tr>
<td>Pedestrian Charter and Walkability</td>
<td>X</td>
</tr>
<tr>
<td>Regional Cycling Network and Supporting Initiatives</td>
<td>X</td>
</tr>
<tr>
<td>Intensification and Neighbourhood Design (RGMS)*</td>
<td>X</td>
</tr>
</tbody>
</table>

* (See section 2.6 Community Development and Environmental
2.1.1 ROW Corporate Fleet Management

The Region undertook an air emission inventory and reduction plan in 2002 and identified a number of initiatives specific for vehicles within the Regional Fleet. These initiatives included switching to cleaner burning fuel and installing advanced pollution control equipment. Implementation of these initiatives took place during 2003-2005, at the time when these activities were not required by any applicable legislation.

Another initiative identified in the Emission Reduction Plan was the purchase of hybrid diesel-electric transit buses as a pilot project. Decreased fuel consumption achieved within the vehicles owned and operated by the Region of Waterloo will lead to significant air emission reductions over time.

The following paragraphs briefly summarized these initiatives.

i. Fuel Switching

**Actions:**
- 10% Ethanol for all gasoline powered vehicles
- Ultra-low sulphur diesel fuels for transit buses
- Reduced sulphur fuel in some off-road vehicles

**Reductions Achieved:**
- 51 tonnes air pollutants, and,
- 1,200 tonnes of CO2 annually

Fuel switching included purchasing 10% ethanol fuel for all gasoline powered vehicles in 2003; adopting ultra-low sulphur diesel fuel (ULSD) for transit buses in 2005, two years before it became mandatory on January 1, 2007; and switching to ULSD for landfill’s off road vehicles in mid 2006, 3 ½ years before the mandatory date of 2010. With these initiatives, approximately 51,000 kilograms of air pollutants along with an additional 1200 tonnes of carbon dioxide (CO2 - primary greenhouse gas) are reduced on an annual basis.10

ii. Pollution Control Equipment

**Actions:**
- Installation of catalytic mufflers on 87 old buses
- Purchase new transit buses with catalytic converters and particulate filter traps

**Reductions Achieved:**
- 22.7 tonnes air pollutants, and,
- 14.3 tonnes air pollutants annually

Installation of advanced catalytic mufflers (emission control devices) on 87 of the oldest transit buses occurred during the years 2004 - 2005. This initiative was estimated to reduce approx 22,700 kilograms of air pollutants (excluding CO2) per year. New bus purchases in 2004 – 2006 included this technology as well as filters to trap particulates from exhaust emissions accounted for a further reduction of approximately 14,300 kilograms of air pollutants per year.11 To date, 68 buses have been purchased for the Grand River Transit fleet with this technology.12

As noted above, recent legislation has been implemented by the federal and provincial governments regarding 5% ethanol gasoline and ULSD content in diesel as well as emission standards for diesel vehicles. Therefore the above initiatives will only be tracked until regulatory standards are in place. The Region’s early adoption of cleaner fuel and pollution control devices have yielded important emission reductions in the recent past and some will continue to provide reduction to 2010 and beyond.
iii. Hybrid Diesel-Electric Buses

Regional Council recently approved the purchase of six hybrid diesel-electric buses to be utilized by Grand River Transit (GRT) in 2008. These advanced technology transit vehicles have the potential to reduce fuel consumption by 30% totaling 50,000 litres of fuel per year for the six buses. This reduction translates into a decrease of 60% in GHGs and 90% in particulates when compared to emissions from standard diesel powered buses.\(^c\)

The Region will be evaluating the use of hybrid buses for GRT. Follow-up from this evaluation could lead to greater use of hybrids within the GRT fleet in the future.

iv. Greening the Fleet

The Region’s fleet includes a wide variety of corporate vehicles used in water services, waste management, roads, traffic, airport, by-law enforcement, facilities, ambulances and police services. Including transit, the total fleet has grown to approximately 1000 vehicles including off-road equipment owned and operated by the Region.

Rightsizing the Fleet

Considering that these vehicles consume a significant amount of fuel, ensuring the right sized vehicle is matched for the required work is important to improve the ratio of litres consumed per 100 kilometres traveled and to reduce the total amount of fuel used.

In the past three years, the ‘right sizing’ approach to managing the Regional fleet, including purchasing more fuel efficient vehicles and a few hybrid-electric cars, resulted in an average 30% increase in fuel efficiency for the vehicles replaced. It is expected that as the Region continues to rightsize its fleet, consumption of non-renewable fuels will be reduced over the long term.

The new Greening the Fleet program also includes:

- advanced scheduled servicing
- fuel-efficient driver training;
- anti-idling policies and programs; and,
- the use of environmental friendly products such as solvent free degreasers and parts cleaners which reduces the amount of chemicals reaching our water resources.

Specialized recycling at Regional fleet centres, a subcomponent of the greening the fleet initiative, is explained within the Waste Management section of this report.

\(^c\) Includes new national manufacturing standards for diesel engines compared to previous emission standards.
Smart Driver Training
Grand River Transit will also be implementing a Smart Driver Training program for transit bus operators starting in 2008. As transit consumes millions of litres of fuel each year, training bus operators on fuel-efficient driving techniques can be an important investment. This specialized training is expected to achieve a reduction of approximately 150,000 litres of fuel in the first full year of the program and 300,000 litres each year after which would result in a significant reduction in local air emissions.

Efforts are under way to improve data analysis and provide regular reporting on emission reductions achieved from these initiatives focused on improving the environmental performance of the Regional fleet.

2.1.2 Transportation Demand Management

A sustainable community offers a wide variety of transportation options that lead to a reduction of vehicle use and resultant emissions. Single-occupant vehicle trips have the highest emissions of air pollutants per kilometre traveled per passenger. More environmentally-friendly modes of travel include:

- walking;
- cycling;
- carpooling; and,
- transit.

The Region of Waterloo was one of the first municipalities in Ontario to employ a full-time Transportation Demand Management (TDM) Planner to promote and enable this modal shift.

i. Employer Initiatives (Community/Corporate)

<table>
<thead>
<tr>
<th>Actions</th>
<th>Reductions Achieved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facilitating TDM at 3 large employers</td>
<td>110.7 tonnes GHG and other air pollutants in the 1st year of the Region’s Travelwise program</td>
</tr>
<tr>
<td>ROW Travelwise Program</td>
<td>37 tonnes of GHG &amp; 0.185 tonnes of air pollutants reduced in 2007 Commuter Challenge</td>
</tr>
<tr>
<td>Commuter Challenge</td>
<td></td>
</tr>
</tbody>
</table>

The Region’s delivers TDM initiatives externally through public outreach as well as an internally for Regional employees. Working with local employers can be an effective strategy of to promote TDM in the community. Any commute trips shifted outside of the peak period, or from a single driver, to walking, cycling, transit, carpooling or teleworking reduces traffic congestion and improves air quality. The Region has worked directly with three large employers to develop and implement TDM programs at these worksites.

Travelwise
To ensure the Region shows leadership in this area, the internal Travelwise program for employees was launched in mid-2006 to encourage walking, cycling, transit and carpooling to regional worksites and for business trips. Incentives such as transit pass subsidies, preferred parking and access to shower facilities are offered to participants. Employees participating in this program help:
• reduce local vehicle exhaust;
• reduce traffic congestion; and,
• may benefit from an increase in physical activity.

In the first year of the Travelwise program, participating Regional employees helped reduce approximately 110,700 kilograms of greenhouse gas emissions and other air pollutants by choosing more environmentally sustainable travel modes. 13 To date, over 200 employees have joined the program.

The Commuter Challenge
The Commuter Challenge is a national program designed to raise awareness regarding the benefits of sustainable commuting and to encourage people in Canadian communities to take action by walking, cycling, transit, carpooling or teleworking instead of driving alone to get to work. The Region’s TDM Planner collaborates with various community ambassadors to encourage the participation of dozens of local workplaces, with impressive results.

In 2006, Waterloo Region achieved 2nd place amongst Ontario communities and 6th across Canada. Thanks to the combined efforts of Regional employees and Councilors, the Region placed second in the community within the category for organizations with over 500 employees which significantly contributed to the overall community achievements.

In 2007, participants in the local event saved 134,843 kilometres of single-occupant vehicle travel by choosing more sustainable transportation modes.14 This translates into approximately 37 tonnes of GHG and 185 kilograms of air pollutants related to smog production. The Region of Waterloo has participated in the Commuter Challenge since the year 2000 and tripled its participation rate since then.

ii. Active and Safe Routes to School (Community)

<table>
<thead>
<tr>
<th>Actions:</th>
<th>Results Achieved:</th>
</tr>
</thead>
</table>
| Alternative forms of transport to school: i.e. walking biking, roller blading | • Less traffic congestion around schools  
• Improved air quality  
• Increased physical activity of children |

There is a significant jump in cars on local roads in the morning hours between 7:15 and 8:15 a.m. and it has been estimated that 20-25% of the traffic is parents or caregivers driving children to school. 15 Air pollution from local vehicle exhaust has also been assessed in some communities around schools showing large increases of emissions of some pollutants during the morning drop-off and afternoon pick-up periods. 16

A dynamic education and promotion program, Active and Safe Routes to School (ASRTS), addresses this problem by working with parents, teachers, students and other community leaders by providing the supports needed to change behaviour. Active forms of transportation to school include walking, biking, roller-blading or using other physical means of getting around instead of using a car or motorized vehicle. Walk to school days and walking school buses have encouraged significant community participation in and around in local neighbourhoods since the local pilot program started in the year 2001.
There are multiple benefits from this program including increased physical activity in children and youth, less traffic congestion around schools and improving air quality. ASRTS is a good example of a collaborative effort with partnerships including local municipalities, Region of Waterloo Public Health and Police Services, school boards, individual citizens and the Ministry of Transportation. Region of Waterloo Public Health staff have chaired this group since 2001 under the collective Together 4 Health which focuses on creating healthy communities through promotion and awareness.

iii. **You Can Clear the Air (Community)**

**Actions:**
- Educational resource unit for grade 3

**Results Achieved:**
- Participation of 1,300 grade 3 students

You Can Clear the Air is an educational resource unit targeted toward elementary school aged children in Grade 3 to create awareness about more sustainable transportation choices and the impacts their choices have on the environment. Designed as a supplement which meets Province of Ontario curriculum guidelines, it also encourages teachers, parents and the larger community to become more sustainable in their travel choices. One of the elements, the GRT bus tour is particularly popular among students. To date, 49 classes, consisting of about 1,300 students have taken the You Can Clear the Air program.

### 2.1.3 Transit Service Enhancements

#### i Xpress Service Expansion (Community)

**Actions:**
- iXpress bus service

**Reductions Achieved:**
- 585 tonnes GHG /yr

In 2006, the Region received financial support from Transport Canada which enabled GRT to establish an express bus service to improve local transportation options. The GRT iXpress is an express bus service, offering competitive travel times and real-time information at enhanced stations to people wanting to reach destinations along the main corridor connecting Waterloo, Kitchener and Cambridge. An estimated 585 tonnes of greenhouse gases are reduced annually as a result of the new iXpress service ridership.

#### ii GRT Service Improvements (Community)

**Actions:**
- Transit expansion
- Bike racks on all buses

**Results Achieved since 1999:**
- 50% increase in transit service
- 52% Increase in ridership

The Region’s transit fleet has been continually growing to improve the level of service provided to the tri-cities area as set out in the Regional Transportation Master Plan. It is estimated that 90% of the local community is currently serviced by GRT with continued improvements planned and implemented every year. To encourage more riders, GRT installed bike racks on all of their buses. This was a first in Ontario.

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\(^d\) GRT service currently does not service the rural townships.
Bus service has increased by 50% in part by regularly increasing the Region’s transit fleet since the year 1999 in order to provide more routes and better schedules. Overall annual ridership on GRT has grown 52% since 1999,\textsuperscript{18} a rate higher than the 16% population growth during the same period.\textsuperscript{19} The Region is committed to further transit service improvements in order to increase the modal shift from automobiles to transit vehicles over the next two decades.

Growth of the transit service and increased ridership participation can result in reductions of local vehicle emissions within the community. More refined data analysis in the future may enable key progress indicators to be developed that account for population and transit fleet growth. Indicators such as passenger kilometres traveled aligned with community surveys may help monitor the proportion of the population of residents that are switching to transit and other more sustainable forms of travel from private automobile trips.

\textbf{iv. Transit Specialty Pass Programs (Corporate / Community)}

\begin{tabular}{|l|l|}
\hline
\textbf{Actions:} & \textbf{Results Achieved:} \\
\hline
Transit pass program with 3 post secondary schools & 27,000 post-secondary students with the U-Pass \\
GRT Corporate Pass & 3 corporate partners \\
\hline
\end{tabular}

The Region offers two specialty pass programs which contribute to increasing the attractiveness of transit as a regular mode choice.

The Transit Pass Program with Post Secondary Schools involves agreements between the Region and three local post secondary groups for a universal transit pass (U-pass) on campus. To date, over 27,000 students from University of Waterloo (undergraduate students) and Wilfrid Laurier University (graduate and undergraduate students) pay a fee along with their tuition which provides them with unlimited access to all GRT conventional services.

The GRT Corporate Pass was developed to provide regular transit riders with a discount, while also remaining revenue neutral. Its main role is seen as a customer retention initiative, which can expand to increase ridership when an employer chooses to further subsidize the corporate pass rate. There are currently three employers offering the program (including the Region), of which all provide a further subsidy to their employees.

\textbf{2.1.4 Transportation Infrastructure and Planning}

Using 1999 as the base year, the Region’s Transportation Master Plan (RTMP) established a target of reducing automobile travel during peak hours by 7% (from 84% to 77%) by 2016 and increasing GRT ridership from 9 million to 19.7 million\textsuperscript{e} in the same timeframe. The RTMP is currently being updated and will include a set of policies that guides how future transportation direction and investment decisions are made throughout the region to the year 2031.

The policies and principles developed within the new RTMP will build on the Region’s Strategic Objective to “enhance, develop, promote and integrate sustainable and active forms of transportation” such as public transit, cycling and walking. The Plan will guide how people and goods move around our community and will be developed in collaboration with the Cities of

\textsuperscript{e} The original RTMP target for transit ridership was 19.1 million – this has recently been updated to 19.7 million.
Cambridge, Kitchener and Waterloo, and the Townships of North Dumfries, Wellesley, Wilmot and Woolwich.20

i. Pedestrian Charter and Walkability (Community)

The Pedestrian Charter, which fosters awareness and support for pedestrian activity, was adopted by Regional Council on July 5, 2005. The Charter puts forward six principles, including environmental sustainability, and 11 areas for action ensuring that walking becomes an increasingly convenient, safe and comfortable mode of travel in Waterloo Region. The ‘walkability’ of our local neighbourhoods and broader region is an important part of several different projects and initiatives managed by the Region. In the coming years, more information is expected on actions that improve the walkability of our community (see further details in the Community Development and Environmental Preservation section of this report).

ii. Regional Cycling Network and Supporting Initiatives (Community)

The Cycling Master Plan was initially completed in 1994 and then updated in 2004. The Plan builds on the Regional Growth Management Strategy and Transportation Master Plan. One of the elements of this initiative is to implement cycling facilities, such as on-road and off-road bike lanes/trails, known collectively as the Regional Cycling Network. The 2004 Cycling Master Plan sets out a long-term goal of building the network to reach 732 kilometres over the next couple of decades.21 In 2001 approximately 178 kilometres had been established and by 2007 year-end this figure had grown to 272 kilometres.

The Cycling Master Plan also includes a series of support strategies that allow users to feel comfortable on the network, and leaving their bicycles when they reach their destination. To date the Region has provided 21 post and ring bicycle racks (short term parking) and 8 bicycle locker spaces (long term parking) at various IXpress stations.

These initiatives complement cycling facilities managed by local municipalities and achieve multiple benefits such as:

- supporting a high-quality transportation system that encourages a shift to non-automotive modes of travel;
- enhances community health and social well-being; and,
- protects and enhances the environment.

Ongoing progress towards the long-term goal of expanding the Regional Cycling Network is monitored over time (see Figure 5). Further evidence of positive outcomes influenced by these efforts can be seen in modal shifts of Regional residents as provided by Statistics Canada. From
2001 to 2006, there was a shift towards an increase in the proportion of workers using cycling to get to work within the region. Similarly, there has been a positive shift in general to more sustainable modes of travel to work, such as use of transit, walking as well as cycling over the past several years. Eight percent more Regional residents used these sustainable transportation choices in 2006 when compared to modes of travel to work in 2001. This progress is primarily attributable to the initiatives described earlier in this section regarding Transportation Demand Management, Transit Service Enhancements in addition to the ongoing Regional investment in Transportation Infrastructure and Planning.

![Figure 5. Monitoring growth of the regional cycling network.](image-url)
2.2 Water Conservation, Efficiency and Protection

Canadians consume more water per person than any other country, with the exception of the United States. This consumption level is partially responsible for water shortages in ¼ of Canadian municipalities over the last 15 years.

Increased demand for water as populations grow will continue to place demands on source water quality and quantity. The Region has identified protection of the quality and the quantity of water resources as one of its strategic objectives.

The five master plans which consider water and wastewater issues in the Region of Waterloo and some of the targets and issues of interest to this section are:

- Water Resources Protection Master Plan
  - Addresses source water quality
- The Tri-City Water Distribution Master Plan:
  - Addresses leak detection within the distribution lines
- The Water Efficiency Master Plan:
  - Targets water savings of 8,146 m$^3$/day (1.8 million imperial gallons/day) by 2015
  - Targets peak water demands lower than an est. 227,000 m$^3$/day (50 million imperial gallons per day)
- The Region of Waterloo Wastewater Treatment Master Plan:
  - Addresses reduction of wastewater flows and monitoring impact of wastewater discharges on receiving waters
  - Ensuring adequate treatment capacity and quality for the community
- Biosolids Master Plan
  - Provides for a 20 year biosolids management plan addressing management and monitoring impacts

In addition, related Regional strategies include:

- Long-Term Water Strategy
  - Average daily water use projections influencing supply capacity
- The Salt Management and Chloride Reduction Strategy
  - Provides a target salt application rate of 25 tonnes/2 lane km road

Region of Waterloo Strategic Objectives Affecting Water

- Protect the quality and the quantity of our water resources
- Effectively use and manage energy resources
- Improve air quality
- Optimize the use of existing infrastructure and ensure it is adequately maintained.

Region of Waterloo Water Services is the department responsible for managing the quality and quantity of local water resources as well as wastewater treatment. Good management of our water resources has many benefits beyond provision of clean and safe drinking water. Water efficiency measures help to maximize the use of our existing infrastructure. This indirectly reduces energy use, as water consumption requires large amounts of energy for pumping and treatment processes. Since the Region draws most of its water from groundwater wells, the Region has been more conservation conscious than other municipalities. In a survey of large municipalities conducted in 2006, the Region of Waterloo had the lowest water consumption per capita of 24 municipalities.
The Region prevents negative environmental impacts to water resources by:

- Proactive management of potential impacts to drinking water sources from industrial/agricultural land uses
- Provision of emergency response to accidental spills in cooperation with the Ministry of the Environment
- Monitoring of ground water sources and aquifer recharge
- Protection of Grand River water quality by advanced wastewater treatment
- Managing energy use to support the water consumption infrastructure, which affects air emissions from burning fossil fuels

A summary of the Region’s water initiatives, are provided in Table 3.

### Table 3. Summary List of the Region’s Water Initiatives

<table>
<thead>
<tr>
<th>Initiative</th>
<th>Level of Detail Provided</th>
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<tr>
<td></td>
<td>Listed only</td>
</tr>
<tr>
<td><strong>Water Resource Protection</strong></td>
<td></td>
</tr>
<tr>
<td>Public Education and Awareness</td>
<td>X</td>
</tr>
<tr>
<td>Groundwater Quality and Level Monitoring</td>
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</tr>
<tr>
<td>Groundwater Protection at Regional facilities</td>
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</tr>
<tr>
<td>Enforcement - Sewer-use By-law &amp; Spills Response</td>
<td>X</td>
</tr>
<tr>
<td>Spills Prevention workshops</td>
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</tr>
<tr>
<td>Rural Water Quality Program</td>
<td>X X</td>
</tr>
<tr>
<td>Municipal Road and Private Sector salt reduction</td>
<td>X X</td>
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<td><strong>Water Conservation and Efficiency Measures</strong></td>
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<td>Water Conservation By-law</td>
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<tr>
<td>Residential Education and Awareness</td>
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<tr>
<td>Industrial, Commercial &amp; Institutional (ICI) Sector Programs</td>
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<td>Rain Barrel program</td>
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<tr>
<td>Toilet replacements</td>
<td>X X</td>
</tr>
<tr>
<td>Xeriscaping demonstration gardens</td>
<td>X</td>
</tr>
<tr>
<td><strong>Monitoring of Water Consumption and Wastewater Management</strong></td>
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<tr>
<td>Water Use Monitoring</td>
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<td>Aquifer Storage and Recovery</td>
<td>X</td>
</tr>
<tr>
<td>Waste Water Management</td>
<td>X</td>
</tr>
<tr>
<td>Biosolids Master Plan</td>
<td>X</td>
</tr>
</tbody>
</table>
2.2.1 Water Resource Protection

The Region is reliant on two drinking water sources. Approximately 80% of our local supply is pumped from groundwater sources and the remaining 20% is derived from the Grand River. In order to protect the quality of the drinking water from potential industrial impacts to groundwater, the Region implemented the first Water Resource Protection Strategy in Ontario in 1993. The updated Water Resources Protection Master Plan was approved in August 2007 and includes proposed programs and initiatives up to 2016.

As a fall out of the Walkerton tragedy, source water protection is now moving from a voluntary program run by many municipalities into a mandatory program governed by the provincial Clean Water Act. As a result, the scope of proposed initiatives in the Master Plan may change; however, a number of existing programs are currently in place and numerous additional measures are proposed over the next few years to ensure that risks to the water supply are minimized.

Drinking water quality is a heavily regulated aspect of the Region’s water management responsibilities and, as such, this environmental initiatives report will not delve into this mandated component of water services. This section of the report provides a few examples of successful voluntary initiatives to address existing threats to the wells. The overall strategy for the well head protection areas also includes prohibiting some activities and land uses, as per the Regional Official Policies Plan.

i. Public Education and Awareness (Community)

**Actions:**
- Classroom visits, community group presentations, media promotion
- Road signs for drinking water resources areas
- Waterloo-Wellington Children’s Groundwater Festival

**Results Achieved:**
- 50,000 grade 4, 5, 6 students educated on groundwater protection

The Region’s 110 municipal wells provide approximately 80% of the local drinking water supply. Well head protection areas have been mapped and clearly identified to raise public awareness that these sensitive zones contain drinking water resources for the region. Community education and public awareness have been an important component of source water protection and include:

- Classroom visits,
- Community group presentations,
- Media promotion, and,
- Road signs identifying these areas. (See Figure 6)

Supplementary education efforts identify certain activities in the area which could affect the quality of water we drink to highlight the importance of protecting these areas. One of the most successful of these is the annual Waterloo-Wellington Children’s Groundwater Festival, which since its inception in 1996, has educated approximately 50,000 local Grade 4, 5 and 6 students on the protection and conservation of groundwater.
On a daily basis, the Region pumps approximately 130,000 m$^3$ of groundwater. Staff assesses the impact of this pumping on area aquifers, wetlands and surface waters by monitoring of water levels in supply wells and hundreds of specifically designed monitoring wells, and surface water bodies throughout the Region. Regional staff also uses the monitoring data to manage pumping activity and ensure the Region complies with the Ontario Ministry of the Environment’s Permit to Take Water requirements.

Monitoring of groundwater quality in both supply and monitoring wells helps assess changes in water quality on a regional scale over time and predict future changes in water quality. Some specific water quality monitoring also occurs at other locations to assess potential impacts from land uses as well as incidents and spills particularly in well head protection areas.

### iii. Groundwater Protection at Regional Facilities (Corporate)

**Actions:**
- Technical advice from Water Services staff on Regional projects
- Manual of beneficial management practices for 50 business sectors

Water Services staff provide technical support to Region project managers on assessing, remediating and protecting groundwater at existing and proposed new Regional facilities. Existing facilities can pose unique problems as they store, handle and transport materials including salt, fuel, and hazardous wastes. Also poor historic construction and practices can result in spills which must be cleaned up to provincial soil and water environmental standards.
Any new facilities should be designed to minimize the likelihood that these structures and facilities will not impact the soil and water. To assist in ensuring this occurs, a manual of beneficial management practices for the 50 business sectors in the Region has been developed to help guide design of new facilities to protect water resources.

iv. Spills Prevention Workshops (Community)

**Actions:**
- Annual Spill Prevention Workshops for IC&I sector

Pollution prevention is recognized as an effective method of protecting the region’s water resources. Although the five-year Business Water Quality Program has concluded, the Region still provides the industrial, commercial and institutional sector (ICI) with annual Spill Prevention workshops. Building on their own spills responsibilities and experience, the Region has developed workshops entitled “Spills: Prevent and Respond.”

The workshops, which have been offered since the year 2000, largely focus on proactive measures that can be put in place to prevent unnecessary spills to water or land. Presentations and a field demonstration simulating spills response actions are provided to primarily industry participants. The simulation experience is provided at Waterloo Region’s Emergency Services Training and Research Centre. This ongoing program is delivered in partnership with the Ontario Ministry of Environment Spills Action Centre, Kitchener Fire Department as well as local environmental consultants and lawyers.27

v. Rural Water Quality Program (Community)

**Actions:**
- Grants and technical assistance for landowners

**Results Achieved:**
- 738 projects implemented
- 17 tonnes of phosphorus discharge prevented
- Over 80 km of fencing and/or vegetative buffers
- 118 hectares of land taken from crop production
- 130,000 trees planted

The Region, in partnership with the Grand River Conservation Authority, has supported the Rural Water Quality Program since 1998. Grants and technical assistance are provided to landowners in the Region to implement measures that improve the protection and quality of surface water, groundwater; and land resources.

Since inception of the program, 738 projects have been implemented such as proper fuel and manure storage, erosion control and tree planting, restricting livestock access to water resources, well protection, septic and liquid waste management. Project outcomes include:

- 17,000 kilograms of phosphorus prevented from discharging to streams annually;
- Over 80 kilometres of fencing and/or vegetative buffers established along water courses including both sides of the entire length of Boomer Creek in Wellesley Township;
- 118 hectares of land taken out of crop production to provide buffer zones; and,
- 130,000 trees planted.28

The Rural Water Quality Program has been extended another five years, to the year 2013, with another $1.5 million in incentives available to rural land owners.
vi. Municipal Road Salt Reduction (Corporate)

The Region of Waterloo’s Transportation Operations division is responsible for road salt management. In 2002, a salt management and chloride reduction strategy was developed as application of road salt was affecting the Region’s drinking water supplies. Excess sodium and chloride in drinking water can affect the taste of the water and levels are regulated by Ontario Drinking Water Quality Standards. Road salt can also have a degenerative impact on vegetation, roads and bridges with continuous use over time. The strategy focuses on reducing road salt application rates by the Region and local municipalities. A target rate of 25 tonnes/2 lane km began in 2004/05 season.

Temperature and precipitation levels heavily influence the need to apply salt to provide safe driving conditions in snow and ice conditions. Historically, colder wetter years have required greater salt applications. Figure 7 illustrates a twenty year trend of road salt application throughout the region.

Road salt application by the Region peaked in 2000/2001 at 18,238 tonnes and has declined to 11,697 tonnes as of 2006/2007. The more recent figure now includes salt applied by contractors which was not previously tabulated prior to 2006. Furthermore, even though the local road network continues to grow, the Region’s application rate per two-lane kilometres of road has declined over the last twenty years as shown in Figure 7. Local municipalities have also achieved a reduction of 24% in road salt usage on streets maintained by the cities and townships from the 2002/2003 winter season to 2006/2007.²⁹

These significant reductions in road salt use have been achieved by using computerized salt spreaders, use of diluted salt brine, operator education and an ongoing monitoring program to track progress. Overall the salt application target per two-lane kilometres of road for the Region has been achieved.

Continued monitoring of progress towards reduction targets may be included in future environmental reports. Water Services staff continues to monitor salt levels in the groundwater to assess how reductions in applications are affecting the quality. It is anticipated that improvements in groundwater quality will take more than a decade to achieve.
Region of Waterloo Historical Road Salt Usage by Kilometers of Road Serviced (1988 - 2007)

Figure 7. Historical Road Salt Application by the Region of Waterloo

(Note: 25 tonne target rate per 2 lane km began in 2004/2005 season)

vii. Private Deicing Salt Reduction (Corporate/Community)

**Actions:**
- Smart about Salt program
- Salt management assessment and reduction for parking lots and areas around buildings

**Results Achieved:**
- Not available

For the last two years Water Services and Facilities staff have been piloting salt management assessments and reduction programs for parking lots and areas around several Regional buildings. Based on this experience Water Services has developed a new program for private facilities and recently launched it as a new initiative under the name Smart About Salt.

This program, aimed at winter maintenance contractors and facility managers provides education, training, and an opportunity for certification for improved winter maintenance at private facilities. It is also intended that this program will incorporate the Region’s previous pilot projects and expanded to all Regional facilities over the next few years.
2.2.2 Water Conservation and Efficiency Measures

The Region has been actively providing water efficiency programs to the community since 1974. The Water Efficiency Master Plan, approved in 1998 and updated in 2006, details best management practices to be implemented to achieve a water conservation target of 8,146 m³/day (1.8 million imperial gallons per day) by the year 2015. This target focuses on year-round “baseline” savings and does not include annual savings that will be achieved through summer “peak” outdoor water use reductions.

As part of the Water Efficiency Master Plan, Region of Waterloo Water Services offers a variety of innovative programs to the community that helps reduce water consumption. As mentioned earlier in this report, large amounts of energy are needed to supply treated water to the community, and any reduction in water consumption due to these efficiency programs will result in less energy being used and less emissions from electrical generation. In 2006, it took on average 0.84 kWh of electricity to produce one cubic metre of treated water, resulting in 0.185kg of GHG.31 Water conservation also helps lengthen the lifespan of infrastructure and possibly defer the capital costs associated with finding new sources of water for the growing population base.

A few of the main programs delivered as part of the Water Efficiency Master Plan are briefly included below, followed by Table 4 which provides estimates of water saved from each of the program areas.

i. Water Conservation By-law (Community)

The Region’s Outdoor Water Use (now Water Conservation) By-law was enacted in 2003. The purpose of the bylaw is to reduce peak water demand during summer months by limiting lawn watering and other wasteful consumption. The following successes have been attributed to the bylaw:

- Peak water demands were held below target demands of 227,000 m³/day (50 million imperial gallons per day) for three consecutive years (2005-07);
- A reduction in residential consumption of 1.5 billion liters, or 21% less water per capita,32 comparing years 2007 and 2001, where the summer temperature and precipitation were similar.
ii. **Education and Awareness (Community)**

**Actions:**
- Displays at events
- EnviroNews publication
- Children's Groundwater Festival

**Results Achieved (see Table 4):**
- 1206 m³/day reduction in water consumption from public education 1999-2006

A number of information initiatives are delivered to residents to encourage them to reduce their water consumption including:
- displays at events,
- communication of water efficiency measures through the Region’s website and EnviroNews, and,
- school curriculum packages for Grades 2 and 8 which include posters, information on the local water sources, work activity books and other material.

In addition the Region is involved with the Children’s Groundwater Festival at Doon Heritage Crossroads, which has been running for over ten years with 40 different interactive stations for elementary students. Water services equally shares with Waste Management in publishing “Environews,” a newsletter distributed twice per year to every household in the Region (see the Waste Management- Education section for more information on Environews).

iii **Industrial, Commercial and Institutional (ICI) Sector Programs (Community)**

**Actions:**
- Site audits
- Free installation of water devices
- Incentives and rebates for high efficiency appliances

**Results Achieved (see Table 4):**
- 660 m³/day reduction in water consumption from IC&I awareness 2000-2006

In 2000 the Region launched a water efficiency program for the ICI sector called Saving Water – It’s Everybody’s Business (SWEB). The main focus of this program was educating large businesses about water efficiency and completing jointly-funded water audits with them. In 2006 the Water Efficiency Master Plan established a cumulative water saving target of 1,041 m³ per day for the ICI sector by 2015 and launched a new program to achieve that.

In 2008 this initiative was expanded and renamed Water Efficient Technology (WET) Program. The main focus of the new program is to assist small and large businesses by providing:
- financial assistance for audits and to implement water efficiency changes in processes or fixtures, and,
- a rebate program for commercial flush valve/bowls.³³

iii. **Rain Barrel program (Community)**

**Actions:**
- Distribution of rain barrels to harvest rain water for outdoor use

**Results Achieved (see Table 5):**
- 31,000 rain barrels distributed since 2001
- 92.14 m³/day saved 2001-06

Since 2001, the Region has distributed 31,000 rain barrels that enable residents to harvest rain water for outdoor use. Public participation has been significant. Many residents have purchased a subsidized rain barrel to help them reduce potable water consumption during the growing season when outdoor water use restrictions are in effect.
iv. Toilet replacements (Community/Corporate)

Actions:
- Low-flow residential toilet replacements
- Corporate toilet replacement and urinal testing program

Results Achieved (see Table 5):
- 49,000 toilets replaced with low-flow version from 1994
- Installation of 550 low flow-toilets in Waterloo Regional Housing 2006 – 2007
- 4104 m3/day saved 1998 - 2006

Low-flow toilets save approximately 7 or more litres per flush. From 1994 to 2007, over 49,000 low-flow toilets have replaced standard equipment in private residences. The Region of Waterloo Facilities Management Division also led by example and implemented a toilet replacement and urinal testing program for its administrative buildings in 2005. The Division also installed 550 low-flow toilets in Waterloo Regional Housing units during 2006 and 2007.

The following table is a summary of the community-based water efficiency improvements implemented between 1998 and 2006.

<table>
<thead>
<tr>
<th>Description</th>
<th>Water Savings (estimated m3/day)</th>
<th>GHG Reduction** (estimated kg/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Education/Awareness (1999-2006)</td>
<td>1206</td>
<td>223.11</td>
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<tr>
<td>ICI Education/Awareness (2000 – 2006)</td>
<td>660.1</td>
<td>122.12</td>
</tr>
<tr>
<td>Rain Barrel program (2001 – 2006)</td>
<td>92.14</td>
<td>17.05</td>
</tr>
<tr>
<td>Residential toilet replacements (1998 - 2006)*</td>
<td>4103.94</td>
<td>759.23</td>
</tr>
<tr>
<td>Totals</td>
<td>6062.18 m3/day (1,330,000 imp. gallons/day)</td>
<td>1121.51 kgs./day</td>
</tr>
</tbody>
</table>

Notes
* Does not include efficiency savings from 14,242 toilets replaced from 1994 – 1997
** Calculation based on average number of KWh to produce one cubic metre of water and the Ontario Electricity Supply Mix for 2006. 30

v. Xeriscaping Demonstration Gardens (Corporate)

Actions:
- 2 demonstration xeriscaping gardens

Xeriscaping (pronounced zair-i-scaping) or "Naturescaping", utilizes a variety of drought resistant species or plants requiring infrequent watering, and native grasses, vines, trees, and shrubs to create aesthetically pleasing landscapes which reduce demands on local water resources. These drought resistant plants and grasses are often:

- easier and less expensive to maintain;
- can be more resistant to insect infestation and disease; and,
- suitable for planting in non-ideal conditions such as steep slopes and poor quality soils. 35
The Region’s Water Efficiency program has developed two demonstration xeriscape gardens. The Greenbrook Demonstration Garden includes drought resistant plants within mixed woodlands, as well as prairie flowers and grasses and a rock garden. There is also a demonstration garden at Regional Administrative Headquarters at 150 Frederick Street. Both gardens serve an education purpose and provide property owners with ideas for their own gardens. All new Regional buildings constructed since 2004 have incorporated xeriscape gardens and grasses.

2.2.3 Monitoring of Water Use and Wastewater Management

i. Water Use Monitoring (Community/Corporate)

**Actions:**
- Monitoring average daily per capita use and peaks

**Results Achieved:**
- per capita use has declined almost 16% from 1999 – 2006
- Peak use declined from 209 m3/d in 1999 to 185.3 m3/d in 2006

Each year, the Region of Waterloo releases the Water and Wastewater Monitoring report which documents actual water use and wastewater flows within the three local cities and four townships. This information is important for:

- Forecasting needed for capital budgets and user rates;
- Managing infrastructure capacity as the region grows;
- Planning and engineering considerations for new development applications.

Assessing peak levels are important for long-term management of water infrastructure as it provides actual data versus maximum projected needs (i.e. demand during the summer season). Peak use in the region declined from 209 m3/day in 1999 to 185.3 m3/d in 2006. reductions in peak water use levels aid in prolonging the life of existing infrastructure as the regional population continues to grow.

Monitoring the data over time can also assist in assessing how well the community is utilizing its water resources from an efficiency perspective (i.e. per capita) and an absolute consumption perspective (overall average day use). The vast majority of water use in the Region is from Cambridge, Kitchener, Waterloo, Elmira and St. Jacobs, collectively known as the Integrated Urban System. Figure 8 illustrates average daily water consumption for the Integrated Urban System.

Data from these five communities indicates that per capita use has declined almost 16% from 1999 to 2006 as illustrated in the graph by the yellow line. However, as of year-end 2006, the total average daily water use in the Integrated Urban System communities combined did not decline below year 2000 levels due to population growth of approximately 50,000 people during the seven-year time span. From a water supply infrastructure perspective, it is important to note that the average daily water use during 1999-2006 is significantly lower than the projections expected within the Long-Term Water Strategy (LTWS).
Water use is influenced by weather with drier years creating more demand than years with greater precipitation levels. However as illustrated by the above chart, the water efficiency measures described in previous paragraphs have been key to preventing overall water use from growing proportionately with the population. The new efficiency targets set within Master Plans will further improve the use of water resources within these communities.

The Region of Waterloo is currently building its capacity to effectively monitor water use within Regionally owned and operated facilities. Several regional facilities include water efficiency measures yet there is no formal monitoring or established efficiency targets. In the near future, Facilities Management will be actively working to set-up formalized tracking and reporting of water use from Regional Facilities.

### ii. Wastewater Management and Biosolids (Community)

- **Actions:**
  - 20 year biosolids management plan

The Region’s original Wastewater Treatment Master Plan was completed in 1995 and has been recently updated to account for changes in legislation and to accommodate updated population growth projections. Managing wastewater flow is important from both a resource protection perspective as well as ensuring adequate treatment capacity for the community.
This Master Plan addresses the role of such measures as ongoing water conservation, demand management and inflow/infiltration reduction initiatives which help decrease future treatment capacity needs. For example, in the community of Ayr, some initiatives have helped reduce wastewater flows by 20-25%. The updated Master Plan recommends that these reduction programs be further investigated and applied to other communities such as Elmira, St. Jacobs, New Hamburg, Baden, and Waterloo.\textsuperscript{38}

Within Waterloo Region, 13 wastewater treatment plants (WWTP’s) provide services to the community. With recent WWTP upgrades, the Region treats wastewater to a higher standard than required by the Ontario Ministry of the Environment. Additionally, within the Water Services Pollution Prevention Plan, there has been a shift from chlorine to ultra-violet treatment methods or de-chloronation to further protect water bodies receiving treated effluent.

Every year, hundreds of thousands of cubic metres of biosolids, a byproduct of wastewater treatment, are created from these plants. The Region of Waterloo initiated its 20-year Biosolids Master Plan study in 2001 and completed it two years later. In 2002 the province enacted the Ontario Nutrient Management Act which regulates biosolids management. Although the Region is progressively working towards the long-term goals of the plan, ongoing reporting of regulated biosolids management is beyond the scope of these future reports.
2.3 Waste Reduction and Management

Waste management is a significant challenge for municipalities. As populations grow, so do the demands on landfills, requiring an emphasis on reducing wastes and diverting waste towards reuse and recycling. The Region of Waterloo Waste Management Division is responsible for managing waste and recycling programs. The Region has identified the reduction of waste requiring landfill as one of its’ strategic objectives.

The two master plans which consider waste management and recycling issues in the Region of Waterloo and some of the targets and issues of interest are:

- **Waste Management Master Plan (WMMP)**
  - addresses long-term landfill capacity
  - the mitigation of environmental concerns associated with landfill operations, and,
  - a wide variety of waste reduction and recycling targets and strategies.

- **Waste Reduction Master Plan:**
  - To ensure goals and targets set within the WMMP primarily with respect to reducing the amount of waste requiring disposal

In addition, the Recycling Implementation Plan identified
  - recommendations to further develop and expand waste diversion programs and construction of a new local Materials Recovery Centre

In addition to the master plans, the Region has its own corporate initiatives that consider waste management and recycling issues. For example, a goal of 90 percent waste diversion has been set for the Regional Administrative Headquarters.

The Waste Management Division has spearheaded a number of innovative programs. In 1984, the Blue Box recycling program was launched in Kitchener, building on the success of a 1981 city pilot—the first of its kind in North America. The Cambridge municipal composting facility was the first of its kind in Ontario when it opened in 1987. The Waterloo landfill located on Erb Street was also the first municipally run operation in North America in 1998 to be certified to ISO 14001 international standards with its comprehensive Environmental Management System.

As one of the fastest growing areas in the province, the Region continues to deliver new waste management programs and services, while adding improvements to environmental controls for operations. A summary of the Region’s waste management initiatives are provided in Table 5.

Landfill gases are addressed in the Energy Management section (Section 2.4.1), and air emissions associated with off-road landfill vehicles is included in Regional fleet emissions within the Transportation section (Section 2.1.1). Waste from construction of Regional facilities and roads is listed below and addressed in more detail within the Facility Construction section of this report (Section 2.5.1).
The environmental impacts of waste management are largely due to the demands of landfill on land resources and the reduction in the need for virgin natural resources by reusing and recycling metals, paper and other materials. In addition, related environmental impacts arise from management of hazardous wastes as well as leachate and air emissions from landfills, which need to be addressed to reduce impacts on local water resources and air quality.

### Table 5. Summary List of the Region’s Waste Management Initiatives

<table>
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<th>Initiative</th>
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</tr>
<tr>
<td>Waste diversion from Regional facilities/operations</td>
<td></td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Cambridge composting facility</td>
<td></td>
<td>X</td>
<td></td>
<td>(included in Residential waste diversion)</td>
</tr>
<tr>
<td><strong>Waste Management Education</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EnviroNews</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ICI Waste Directory</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tours, presentations &amp; displays</td>
<td></td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td><strong>Environmental Management Controls</strong></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental Management System</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reforestation of Waterloo Landfill</td>
<td></td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Rehabilitation/closure of Landfills (Kitchener/Cambridge)</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### 2.3.1 Waste Diversion/Reduction

**Waste Management Master Plan**

In 1986, the Region completed a comprehensive Waste Management Master Plan which has been updated every five years, most recently in 2006. The plan addresses long-term landfill capacity and the mitigation of environmental concerns associated with landfill operations, as well as a wide variety of waste reduction and recycling strategies. Related sub-plans include Waste Reduction and Recycling Implementation Plans. The following paragraphs highlight some of the plans’ achievements.
i. Waste Diversion (Community and Corporate)

Community Waste Diversion Programs

Actions:
- Comprehensive recycling program
- Electronic waste (computers etc.), household hazardous waste, and tires
- Yard waste and leaves turned into reusable products (e.g. wood chips and compost for gardens)
- Green Bin pilot program for organic wastes

Results Achieved:
- Waste diversion rate: 43% (2006)
- 79,000 tonnes diverted from landfill in 2006 from all programs

At the community level, there is robust and detailed data illustrating both efficiencies (waste landfilled and diversion per capita) as well as absolute impacts (total waste diverted and landfilled). Figure 9 illustrates almost twenty years of local landfill data from residential, industrial and commercial streams.

![Figure 9. Total Landfill Tonnage Received at Cambridge and Waterloo Sites 1988-2006](image)

(Note: Industrial/commercial waste accounts for approximately 62% of landfill received)

Although landfill waste has declined significantly from 20 years ago, there has been an increasing trend since the mid-1990’s. The total landfill trend line for during the time period illustrated in Figure 9 was influenced by adjustments to industrial and commercial tipping fees charged to local businesses. However, significant progress has been made in the area of residential waste diversion with the Blue Box program and other re-use and diversion programs. Table 6 lists the key additions to the recycling program and the landfill bans on materials that are potentially harmful to the environment which have contributed to this progress.
Table 6. Key recycling and waste diversion milestones achieved in Waterloo Region.

<table>
<thead>
<tr>
<th>Initiative</th>
<th>Year Initiated</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>New items added to Blue Box collection</td>
<td>1989</td>
<td>large plastic soft drink containers</td>
</tr>
<tr>
<td></td>
<td>1991</td>
<td>Telephone books, corrugated cardboard</td>
</tr>
<tr>
<td></td>
<td>1995</td>
<td>#2 HDPE plastic bottles and jars, boxboard, magazines and catalogues, household fine paper, aluminum foil and foil trays as well as paperback books.</td>
</tr>
<tr>
<td></td>
<td>2002</td>
<td>Rigid household plastics (#1-#7), empty dry paint cans (lids removed), grocery and retail bags, empty aerosol cans, hard cover books</td>
</tr>
<tr>
<td></td>
<td>2004</td>
<td>Gable top cartons and aseptic packaging (milk cartons and drink boxes)</td>
</tr>
</tbody>
</table>

**Landfill bans and other diversion programs**

<table>
<thead>
<tr>
<th>Initiative</th>
<th>Year</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household Hazardous Waste diversion</td>
<td>1984</td>
<td>Oil, paint, solvents etc. 1st household hazardous waste pilot in Canada</td>
</tr>
<tr>
<td>Tire ban</td>
<td>1988</td>
<td></td>
</tr>
<tr>
<td>Corrugated cardboard ban</td>
<td>1991</td>
<td></td>
</tr>
<tr>
<td>Appliance collection and CFC removal</td>
<td>1995</td>
<td></td>
</tr>
<tr>
<td>Goodwill partnership</td>
<td>1996</td>
<td>Re-Use trailer on site 2007</td>
</tr>
<tr>
<td>Paint re-use centre</td>
<td>1998</td>
<td>Expanded in 2000</td>
</tr>
<tr>
<td>Yard Waste/Brush</td>
<td>2002</td>
<td>Collection in Tri-cities</td>
</tr>
<tr>
<td>Wooden pallet ban</td>
<td>2003</td>
<td></td>
</tr>
<tr>
<td>Grass ban</td>
<td>2003</td>
<td></td>
</tr>
<tr>
<td>Bike re-use bunker</td>
<td>2005</td>
<td></td>
</tr>
<tr>
<td>E-waste ban</td>
<td>2005</td>
<td></td>
</tr>
<tr>
<td>Habitat for Humanity partnership</td>
<td>1999</td>
<td>Re-usable building materials diversion</td>
</tr>
<tr>
<td>Green bin pilot</td>
<td>2006</td>
<td>5,000 homes launched in 2006, expanded in 2007/08</td>
</tr>
</tbody>
</table>

The landfill bans and diversion programs for potentially hazardous wastes have been significant in protecting the environment, specifically, local land and water resources. In 2006 alone, programs for electronic waste (computers etc.), household hazardous waste, and tires diverted over 1,500 metric tonnes away from the landfill. Other wastes which could be composted, such as yard waste and leaves, were diverted by over 26,000 tonnes in 2006. Figures 10 and 11 illustrate the per capita and total residential waste diverted and landfilled along with population growth experienced within Waterloo Region during 1998 - 2006. In the year 2006, the Region’s waste management programs achieved a 43% diversion rate.38
The success of the residential diversion programs and landfill bans have kept the per capita rate of residential waste to landfill relatively stable despite recent population growth. Figure 10 shows that in 1998, each person living in Waterloo Region diverted 116 kilograms of waste away from the landfill and by the year 2006 this rate had climbed to 156 kilograms per person for an increase of 34 percent. However, landfill tonnage per capita has not improved during this time perhaps due to increased rates in the consumption of goods and/or associated with increased packaging materials on consumer products. Similarly, Figure 11 shows an increase in aggregate waste diversion from 50,414 tonnes in 1998 to just over 79,000 tonnes in 2006, representing a 57% increase. However, the total amount of residential waste going to landfill has also increased by over 16,000 tonnes, or 19 percent, from 1998 – 2006 (Figure 11).
In 2006/2007, a pilot project involving 5,000 households (expanded to 10,000 in the fall of 2007) was conducted to evaluate the diversion of household organic waste (e.g. food, coffee grinds/filters, paper towels) from the landfill by utilizing green bins for curbside collection, similar to the practice in other Canadian municipalities. Approval has been given to expand the Green Bin program in the fall of 2008 by a further 40,000 households. This is expected to improve the diversion rate per household (efficiency improvement) and decrease the amount of waste reaching our local landfills (absolute reduction) as the organic waste will be processed into re-usable compost.

**ii. Corporate Waste Diversion Programs**

**Actions:**
- Comprehensive Recycling program for various materials used in Regional operations
- Green Bin pilot program for organic wastes at Regional Headquarters building and Sunnyside Home
- Waste Audit pilot conducted at Regional Headquarters building

**Results Achieved:**
- 65% diversion rate at Regional Headquarters building (2007)
- New target (Headquarters): 90% by year-end 2008 at headquarters building

Corporately, the Region of Waterloo manages its waste from operations in a similar manner with a wide variety of recycling and diversion initiatives for items such as:
- blue box recycling of paper, cardboard, cans, glass, plastic;
- office machine toner cartridges and equipment batteries;
- compact fluorescent light bulbs and tubes (containing mercury);
- oil and oil filters, scrap metal/wire, batteries and tires from fleet operations centres;
- waste from renovation and construction of Regional facilities and roads;
- aluminum foil/trays, plastic bags and milk/juice cartons at Waterloo Regional Housing;
- medical sharps from EMS, Public Health clinics and Sunnyside Retirement Home;
- organic waste at Regional Administrative Headquarters and Sunnyside Retirement Home;

The organic waste collection through the Green Bin program, a new initiative implemented at Regional Administrative Headquarters building in Kitchener in February 2008, is being implemented to increase the building’s waste diversion from the current 65 percent to reach a goal of 90 percent by year-end 2008. Part of this initiative also includes purchasing more recyclable or biodegradable products for our cafeterias, such as straws, stir sticks, and take-out containers. The program will be expanded to other Regional buildings and facilities in the near future as education and promotion surrounding the procedures of recycling and composting develop.

There is incomplete data on many of these corporate recycling/diversion initiatives. Efforts in the near future, such as on-site waste audits and better tracking from contracted waste carriers will improve the ability to monitor and report on the amount of waste diverted from Regional operations on an ongoing basis.
2.3.2 Waste Management Education

Over the years there have been numerous education and promotion initiatives addressing a multitude of waste management issues. It is not the intent of this report to provide a comprehensive list of all waste related education program in this area, however, three of the main initiatives are briefly summarized below.

i. EnviroNews

EnviroNews has been providing regional residents primarily with waste (and water) reduction information since 1989. This four page publication is printed on recycled paper containing 30 percent post-consumer waste using vegetable-based inks. It is distributed twice per year to every regional household via Canada Post. The information included in EnviroNews covers a wide scope while providing essential information pertaining to special drop-off locations and curbside pick-up times for items such as household hazardous waste and yard waste collection. It also contains information on new initiatives such as e-waste diversion and the Habitat for Humanity and Goodwill collection programs available at the Waterloo landfill.

ii. Waste Reduction Customer Service Centre

The division works hard to promote and educate the community about all available programs. The Waste Reduction Customer Service Centre receives approximately half a million calls/visits per year. This is in addition to tours provided, presentations delivered to schools and other groups as well as displays exhibited at various events. From 1992 – 2007, public participation in these types of education activities has involved well over 36,000 people on average per year.

iii. Industrial, Commercial and Institutional Waste Reduction Directory

The Region of Waterloo was the first municipality in Canada to initiate a waste exchange pilot for the Industrial, Commercial and Institutional (ICI) organizations in the community in 1984. In 1994, a waste reduction directory was prepared for the ICI sector. An area of future focus for the Region’s Waste Management division is to assist the ICI sector in diverting their waste stream from landfill.
2.3.3 Environmental Management Controls

In 1998, the Region of Waterloo Waste Management Division, as part of being a certified operator under the 14001 International Standards Organization process (ISO), established its Environmental Policy for operations at the Waterloo landfill. In condensed format, the policy states the division will manage their Waste Management Centre programs and operations to:

- “make environmental considerations a priority in all business, planning and decision-making processes;
- manage our activities so as to meet the letter and intent of environmental legislation;
- identify and monitor significant environmental impacts and set measurable objectives and targets to reduce those impacts;
- conduct regular environmental audits;
- communicate openly and in a timely manner;
- regularly review [the] policy.”

The policy has a significant scope ranging from landfill operations, fuel storage and handling for motorized vehicles used at the centre, as well as managing environmental impacts including protection of the adjacent Environmentally Sensitive Policy Area (ESPA) to name just a few activities. The site has been successfully recertified under the ISO 14001 standards every three years since inception.

Another important environmental management control is the proper closure and rehabilitation of old landfills. In 2003, the Region closed the Cambridge landfill site by installing an impervious cap to minimize the entry of water and resultant production of leachate which can adversely impact water resources. At the Erb Street landfill in Waterloo, as of 2005, 19,300 square metres of the site had been capped and re-vegetated with trees and shrubs with the long-term goal to visually blend back the site with the ESPA, and make the land available for passive recreation use. In 2006 the Region entered into an agreement with the City of Kitchener allowing the surface of the old Ottawa Street landfill to be re-developed as an active recreational site. The Region monitors and maintains environmental controls at the closed landfill sites.
2.4 Energy Management and Facility Operations

Energy, essential to the operation of buildings, production of water and separation of waste, is an important aspect of any municipalities’ plan to reduce its organization’s environmental impact. In a recent *Municipal World* article, energy management was identified as key to a sustainable future. “If sustainable development is to be achieved, then energy management must, at this stage, be considered the cornerstone as it offers realistic and practical long-term solutions.” The Region has identified effectively using and managing energy resources as one of its’ strategic objectives.

The primary environmental impacts within this category concern both regional smog and ground-level air pollution as well as global climate change resulting from air emissions associated with coal and natural gas combustion. A secondary environmental impact is the use of non-renewable resources (such as coal and natural gas) at an unsustainable rate.

In providing a wide array of essential programs and services to the community there are large energy demands for example in operating administrative buildings as well as clinics, daycares, regional housing and retirement facilities, water pumping and treatment facilities, traffic signals and streetlights on regional roads. Therefore it is an ongoing challenge to providing reliable and safe municipal services while concurrently ensuring optimal energy use.

The Region of Waterloo consumes over 130,000 Megawatts of electricity per year and almost eight million cubic metres of natural gas per year. Figures 12 and 13 illustrate their corporate electricity consumption by facility type and natural gas consumption by department.

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**Figure 12. The Region’s corporate electricity consumption by facility type (2006)**

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*The current power generation mix in Ontario is Nuclear = 52%, Hydro = 21%, Coal = 18%, Nat Gas/other = 8%, Wind = 1%. Source, Ontario Ministry of Energy.*
Figure 13. The Region’s corporate natural gas consumption by Department (2006)

There are two major means of reducing energy consumption, and therefore an organization’s environmental impact. First, an organization can implement energy conservation and efficiency measures. Second, an organization can install renewable systems or purchase energy from renewable sources. Table 7 provides a summary lists of the main initiatives in these two areas that the Region has implemented over the years to achieve this goal. Additional initiatives are included regarding administrative mechanisms that assist in the associated energy and information management process.

Table 7. Summary List of the Region’s Energy Management Initiatives

<table>
<thead>
<tr>
<th>Initiative</th>
<th>Level of Detail Provided</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Listed only</td>
</tr>
<tr>
<td><strong>Energy Production</strong></td>
<td></td>
</tr>
<tr>
<td>Landfill gas capture</td>
<td>X</td>
</tr>
<tr>
<td>Renewable energy production</td>
<td>X</td>
</tr>
<tr>
<td><strong>Energy Conservation and Efficiency</strong></td>
<td></td>
</tr>
<tr>
<td>Retrofits/upgrades to Regional corporate facilities</td>
<td>X</td>
</tr>
<tr>
<td>Traffic light conversion</td>
<td>X</td>
</tr>
<tr>
<td>Energy improvements in water service facilities</td>
<td>X</td>
</tr>
<tr>
<td>Energy improvements in community based facilities</td>
<td>X</td>
</tr>
<tr>
<td>Smog day/peak energy demand policy</td>
<td>X</td>
</tr>
<tr>
<td>Energy demand policies and staff education</td>
<td>X</td>
</tr>
<tr>
<td><strong>Energy Management Infrastructure</strong></td>
<td></td>
</tr>
<tr>
<td>Energy and Environmental Management System</td>
<td>X</td>
</tr>
<tr>
<td>Development of Energy Office</td>
<td>X</td>
</tr>
</tbody>
</table>
2.4.1 Energy Production

i. Landfill Gas Capture

Actions:
• Methane gas is captured and utilized as an energy source from two landfill sites

Reductions Achieved and Energy Produced:
• Since 1999, approximately 165 million cubic metres of methane has been captured from the Erb Street landfill, generating over 250 million kilowatt hours of electricity

Landfill gas (methane) is an expected air emission by-product of municipal landfill operations. Methane is also a potent greenhouse gas which impacts global climate change. In the late 1990s, the Region of Waterloo started capturing and utilizing this gas as an energy source by diverting the emissions and producing electricity through an on site power plant. The Waterloo methane gas capture system, located at the Erb Street landfill, came online and started producing energy in the fall of 1999 (see Figure 14).

Figure 14. Landfill gas capture plant in Waterloo, operated by Toromont Energy Ltd.

The power plant, operated by Toromont Energy Limited is a 4.6 megawatt power station. At full capacity, the Waterloo landfill site is expected to produce up to 2183 m³ of gas per minute, enough to generate electricity to serve 4000 homes. Since beginning operation in September 1999, the energy production of this system has yielded over 250 million kilowatt hours of electricity by capturing approximately 165 million cubic metres of methane.45

Only 5% of the power produced is consumed on site by the powerplant while the remaining 95% is exported into the provincial energy grid.35 Figure 15 illustrates the power production from methane capture at this site over an 8 year period, with peak capacity being reached following the year 2004. The Cambridge landfill site has a smaller landfill gas capture system which sells its methane gas to an adjacent business, Courtice Steel, which utilizes the locally generated energy source to replace natural gas in its steel making process. Both the Erb Street landfill and Cambridge landfill gas systems have an added natural resource conservation benefit as power is produced without the use of non-renewable sources of energy.

8 Methane has a greenhouse gas equivalency factor of 20 times that of CO₂, i.e. 1 tonne of methane = 20 T of CO₂e.
ii. Renewable energy production (Corporate)

**Actions:**
- Implemented five alternative energy projects
- Wind feasibility study with the City of Waterloo and the University of Waterloo

**Potential Future Initiatives:**
- Further exploration of new renewable energy applications

Over the past three years, the Region’s Facilities department has implemented five different initiatives that harness alternative energy sources instead of drawing energy from the provincial grid. All five utilize renewable energy sources and inherently have lower or no air emissions associated with consumption. Although there is no detailed data readily available on these initiatives, they are listed below with a brief explanation of their application:

- 20 kW Photovoltaic System – used to capture solar power and provide electricity energy to the EMS Operations Building in Kitchener;
- Solar thermal energy – used to heat water as a pilot project at one of the Regionally operated daycares;

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*Figure 15. Power production from Waterloo landfill gas conversion, 2000 - 2007. (*Note: energy production decline in 2007 due to an engine shutdown for approximately 1 month.*)*
• Geothermal study – feasibility study at the Regional Library Headquarters and Regional History Museum to evaluate economic cost of installing a geothermal system to provide heating and cooling services.
• Small photovoltaic and wind power installed to operate a gate at the Waterloo landfill;
• Biogas study – currently some of the biogas from waste sludge is used to provide heat to the digester rather than natural gas while the rest is burnt off. A study has been initiated to determine if the remaining gas can be utilized to operate equipment instead of using non renewable energy (implemented with a grant from the Wastewater Technology Centre).

The Region is also engaged in a wind feasibility study with the City of Waterloo and the University of Waterloo to assess if appropriate wind speeds are locally available to harness long-term use of wind power in Waterloo. The project was financially supported by a grant from the Federation of Canadian Municipalities Green Municipal Funding program. In the future, with more wide-spread application and larger scale, use of renewable energy sources within facilities and operations could provide the means to make absolute reductions in the Region’s energy consumption.

2.4.2 Energy Efficiency and Conservation (Corporate/Community)

i. Retrofits and Upgrades to Regional Corporate Facilities

<table>
<thead>
<tr>
<th>Actions:</th>
<th>Reductions Achieved:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upgrades in lighting, heating, ventilation and air conditioning systems</td>
<td>659 tonnes of GHG emissions annually from upgrades and improvements during 2003 - 2006</td>
</tr>
</tbody>
</table>

The Region’s corporate buildings and facilities primarily consume energy to operate lighting and various equipment as well as heating, ventilation and air conditioning. The Facilities department in conjunction with various departments has been actively upgrading the energy efficiency of building and process systems on an annual basis since 1993.

Some highlights of more recent energy efficiency improvements include:

- Lighting retrofits in five different regional buildings and parking garages (including the Children’s Safety Village) in 2003 saved 187,555 kilowatt hours (kWh’s) translating to a reduction of 57 tonnes of greenhouse gases;
- Optimizing use of building operation strategies, automated systems and adjustments of standards (e.g. heating/cooling temperatures) at two of the main administrative buildings initially implemented in 2004 resulted in proven annual energy consumption reductions of 530,000 kWh or 8.8 % and a reduction of greenhouse gas emissions of 161 tonnes.
- A reduction in the use of electricity (by 715,180 kilowatt hours) during 2005 in the Public Health and Social Services building in Waterloo, from improvements to lighting and heating, ventilation and air conditioning systems implemented in 2004; translating to a reduction of 217 tonnes of greenhouse gases.
- Various corporate lighting retrofits and equipment upgrades initiated in 2006 in several different facilities resulting in annual reductions of electricity by nearly 800,000 kWh’s thereby reducing approximately 224 tonnes of greenhouse gases. 43, 46, 47

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h These facilities do not include 2500 Regional social housing units, which only a proportion are under the Region of Waterloo’s energy responsibility. This is addressed further in the next subsection re “Community-Based Facilities.”
ii. **Traffic Light Conversion (Corporate)**

**Actions:**
- Converted all signalized intersections to light emitting diode technology, 2006-2007

**Reductions Achieved:**
- Over 4.4 million kilowatt hours / 1,250 tonnes of GHG emissions annually

Traffic signals operating 24 hours a day, seven days a week consumed over 7 million kilowatts hours of electricity in 2006, just over 5% of the Region's total consumption. During 2006 and 2007, the Region converted all signalized intersections from incandescent bulbs to light emitting diode (LED) technology resulting in approximately a 70% reduction in energy use translating into a decrease of over 4.4 million kilowatt hours and an estimated 1,250 tonnes of greenhouse gases. This conversion was achieved with the assistance of a grant from the local electrical distribution companies.

iii. **Energy Improvements in Water Service Facilities (Corporate)**

**Actions:**
- High efficiency water pumping equipment
- Water efficiency and reduction measures that reduce demand for energy to pump and treat water resources

More than half of the Region’s total electricity consumption is attributed to the treatment and pumping of water (57% in 2006). Water Services has continually improved its energy efficiency through a number of means:

1) Water efficiency measures (toilets, washing appliances - discussed earlier in report) leading to less demand for both water and associated energy resources;
2) Replacing pumping equipment with high efficiency equipment as appropriate, and;
3) Instituting an outdoor water use by-law which again reduces the demand for energy to pump and treat water resources.

Further details of these initiatives are previously described in more detail within section 2.2 of this report.

iv. **Energy Improvements in Community-Based Facilities**

**Actions:**
- Installation of an energy recovery unit to capture waste heat
- Energy efficiency retrofits to lighting

**Reductions Achieved:**
- Energy recovery unit reduced natural gas used for heating by 80%
- 39,000 incandescent bulbs replaced with compact fluorescent lights

The Region of Waterloo owns and operates the facilities at Sunnyside Retirement Home and approximately 2500 social housing units. Ongoing energy improvements to these facilities include upgrades to energy efficient appliances (refrigerators/stoves), conversion of electric to natural gas heating, increased roof insulation, and window replacements.
In 2005, all 39,000 of the incandescent bulbs were replaced with energy efficient compact fluorescent bulbs in all Waterloo housing units with significant energy savings. Installation of innovative energy recovery units captures waste heat from Sunnyside (e.g. laundry facilities) to reduce natural gas used for heating by approximately 80%.

Another unique project implemented at the Regional housing units were sensors to automatically adjust thermostats when the house is vacant. This initiative was implemented with financial support from Cambridge North Dumfries Hydro. Kitchener Wilmot Hydro also distributed 649 energy saving kits to housing units where the tenant is responsible for paying their own utility bills.

v. Energy Demand Policies and Staff Education (Corporate)

Actions:
- Lower energy demand by limiting use of air conditioning and reducing unnecessary lighting
- Employees reminded of actions they can take to conserve energy

In the warmer months of the year, there are peak demands for energy largely for air conditioning. During these periods, the capacity of Ontario Power Generation is put under much strain and many government organizations are asked to assist in lowering the demand for power. Similarly, when the Ontario Ministry of Environment issues an air quality advisory for this Region, messages are communicated that link high energy use and emissions that contribute to smog formation.

The Region works cooperatively with the Province to lower its energy demand by limiting use of air conditioning and reducing unnecessary lighting in vacant parts of buildings. Regional staff are also sent seasonal reminders to lower blinds at certain times of the day when sunlight can significantly heat up office areas with large windows. On a year-round basis, employees are reminded to turn-off lights, computers and other equipment when not in use in order to further conserve energy.

2.4.3 Energy Management Infrastructure (Corporate)

i. Energy Monitoring and Validation

Actions:
- Purchased the Energy and Environmental Management System to measure the Region’s energy, water and fuel consumption – 2004
- Development of Corporate Energy Conservation Office, where new staff positions will be paid out of energy savings

Potential Future Initiatives:
- Comprehensive Corporate Energy Reduction Plan

Over the past fifteen years, Facilities Management staff has worked closely with all Regional departments identifying proven energy-savings opportunities, facilitating any rebate or grant funding processes and implementing retrofit projects as well as validating energy savings. Research, planning and design for most of the projects under the Corporate Energy Program cover a wide spectrum of technologies and approaches from major energy-saving retrofits to smaller scale initiatives, pilot projects and aggressive building operations strategies.
Internal capacity for energy monitoring and validation was improved in 2004 as the Facilities Management division purchased a web-based tool that aids in tracking energy use, cost and emissions data. The Energy and Environmental Management System (EEMS), is software developed by the Regional Municipality of York specifically for municipal operations. The system has the capacity to handle data for electricity and natural gas consumption, water consumption and was recently upgraded to include fuel consumption and mileage for fleet management.

Examples of the output from EEMS are included below. Figure 16 Illustrating greenhouse gases and oxides of Nitrogen emissions (a precursor to the formation of ground-level ozone and smog) associated with the Region’s electricity consumption. Figure 17 shows the declining energy consumption at the Public Health and Social Services building in Waterloo due to the reduction initiatives implemented over the past five years (e.g. previously listed in section 2.4.2).

Although this software system has substantially enhanced the ability to monitor some of these consumption parameters, there is a significant investment needed in human resources for the data entry and analysis. Recently, Council endorsed the hiring of additional Energy Office staff including a data entry clerk, energy analyst and auditor/project coordinator to help develop and formalize a Corporate Energy Conservation Office. These additional human resources will be funded largely from annual energy savings achieved in the previous year by Facilities aggressive energy reduction efforts.

The energy reduction results to date have been achieved with very limited staff, therefore the enhancements from a bolstered energy office are expected to ramp-up further energy reductions in the near future. One of the main goals in 2008 is formalize a comprehensive energy reduction plan for the entire Regional organization. In future environmental reports, the Region expects to be able to better illustrate the energy savings and emission reductions with enhanced data analysis.
Figure 16. Electricity Distribution of Emissions by Facility Type (Region of Waterloo, 2006)

<table>
<thead>
<tr>
<th>Facility Type</th>
<th>CO2e (kg)</th>
<th>NOx (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buildings</td>
<td>12,185,837</td>
<td>15,972</td>
</tr>
<tr>
<td>Street &amp; Traffic Signals</td>
<td>3,768,271</td>
<td>4,939</td>
</tr>
<tr>
<td>Water &amp; Wastewater</td>
<td>20,662,832</td>
<td>27,083</td>
</tr>
<tr>
<td>Totals</td>
<td>36,616,941</td>
<td>47,994</td>
</tr>
</tbody>
</table>

Region of Waterloo, 2006

Figure 17. Energy reductions achieved at the 99 Regina Street building, 2002 – 2007.
2.5 Facility Construction and Materials Management

Construction and renovation of Regional facilities uses a wide variety of natural resources that can impact the environment. Ranging from construction materials, office furniture and carpet, lighting fixtures and plumbing equipment, there are a host of opportunities to develop facilities in a more sustainable manner.

These improvements, since they are considered and implemented at the design and construction stage, can yield ongoing environmental benefits in areas such as reduction of energy and water consumption for example when compared to built facilities that do not consider sustainability.

The Region is also a large consumer of materials such as office paper, paper towels and cleaning products among others. Environmentally responsible procurement can decrease natural resource impacts by purchasing products that have Canada’s EcoLogo labelling, for example, which helps identify environmentally preferable (“green”) goods and services.  

Standards and policies affecting the Region’s facility construction and purchasing practices are discussed in this section which have a clear environmental benefit (whether or not data is currently available). Table 8 lists the initiatives relevant to this scope.

Table 8. Summary List of Facility Construction & Materials Management Initiatives

<table>
<thead>
<tr>
<th>Initiative</th>
<th>Level of Detail Provided</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facility and Road Construction</td>
<td></td>
</tr>
<tr>
<td>Leadership in Energy and Environmental Design and Green Roofs</td>
<td>X</td>
</tr>
<tr>
<td>Road construction</td>
<td>X</td>
</tr>
<tr>
<td>Tree planting in road projects</td>
<td>X</td>
</tr>
<tr>
<td>Construct roundabouts in place of signalized intersections</td>
<td>X</td>
</tr>
<tr>
<td>Region contracts limit idling times and hours of refueling for contractors</td>
<td>X</td>
</tr>
<tr>
<td>Storm sewer design/construction for resource protection</td>
<td>X</td>
</tr>
<tr>
<td>Materials Management</td>
<td></td>
</tr>
<tr>
<td>Green purchasing guidelines</td>
<td>X</td>
</tr>
<tr>
<td>Energy Star Standard for office machines/equipment</td>
<td>X</td>
</tr>
<tr>
<td>Environmental friendly Fleet Service products</td>
<td>X</td>
</tr>
</tbody>
</table>
2.5.1 Facility and Road Construction (Corporate)

i. Leadership in Energy and Environmental Design (LEED™) and Green Roofs

Actions:
- New regional buildings must be built to meet LEED™ Silver Standards at a minimum
- Green Roof Strategy for regional facilities – under development

Anticipated Reductions:
- Most LEED™ silver level buildings range from 35-50% energy savings, whereas most gold level building range from 50-60% energy savings.

The LEED™ program is a green building rating system developed in the United States and adopted by the Canada Green Building Council. The LEED™ program, originally formulated by the U.S. Green Building Council “provides a recognizable standard for the construction industry to assess the environmental sustainability of building design.” The standard has criteria in six different categories associated with facility design and construction which have points associated with the level of environmental benefit achieved. The six categories and the various design measures that could be used in each category are illustrated in the following table:

<table>
<thead>
<tr>
<th>LEED Category</th>
<th>Examples of Design Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sustainable Sites</td>
<td>Minimum site disturbance; high density; proximity to transit; bicycle facilities; reduced light pollution; improved storm water quality; redevelopment of brownfield site; etc</td>
</tr>
<tr>
<td>Water Efficiency</td>
<td>Utilization of low flush and dual flush toilets, waterless urinals, rainwater harvesting for non-potable water use (e.g. toilets), and drought resistant landscaping</td>
</tr>
<tr>
<td>Energy and Atmosphere</td>
<td>Use of high energy efficient building systems, CO² monitoring, entropy heat recovery, and renewable energy sources; elimination of ozone depleting substances. Often leading edge technology is utilized.</td>
</tr>
<tr>
<td>Materials and Resources</td>
<td>Amount of renewable materials, recycled materials, non-toxic materials, locally produced or extracted materials used; building durability; and for recycling, reuse and reduction of construction waste that would be sent to landfill</td>
</tr>
<tr>
<td>Indoor Air Quality</td>
<td>Selection of materials that release few or no toxic compounds into the building, and other issues that affect the overall indoor environment</td>
</tr>
<tr>
<td>Innovation and Design Process</td>
<td>Innovative systems such as green cleaning, renewable energy, new materials, green roof, etc.</td>
</tr>
</tbody>
</table>

An example of how one of the above design measures has been utilized within the Region’s LEED projects is cisterns. In various projects they have been used to reduce use of drinking water for non-potable applications include flushing toilets, making salt brine at a salt storage building, filling street sweepers, spraying a cellulose cover material at the landfill and washing heavy vehicles. Cisterns require significantly less energy than producing a litre of drinking water.
Points accumulated for each project, with third party validation, can achieve the base certification standard or either silver, gold or platinum designations. For example, for energy efficiency, 25% energy savings over Canadian Building Code standards is a prerequisite, and up to 10 points are available at incremental thresholds of energy savings. Most silver level buildings range from 35-50% energy savings, whereas most gold level building range from 50-60% energy savings. In 2004, the Region became the first municipality in Ontario to achieve the gold level of LEED Canada™ certification with its innovative construction of the EMS Headquarters and Fleet Centre building in Cambridge. A few facts about the EMS Building:

- uses 60% less energy than a normal building built to code
- uses 85% less water
- 80% of the construction waste was recycled or reused
- over 25% of the material used in the building is recycled or renewable
- includes bio-swales for treating storm runoff and drought resistant meadow grass mixture so there is no need to use pesticides, water and it only has to be cut twice per year

Shortly following this achievement, Council endorsed a policy for all new Regional buildings over 500 square metres of occupied space to be built, as a minimum, to Silver standards. This ensures most new Regional buildings will be 35% - 50% more energy efficient that the standard building code requirements. Currently, the Region has six construction projects in progress that will be built to LEED™ specifications. These projects include expansion of police headquarters, a building at one of the Regional landfills, expansion of offices and workshops at Mannheim Water Treatment facility, supportive housing at Sunnyside facility, as well as a Regionally operated museum and childcare.

A green roof strategy for Regional facilities is currently under development which can achieve reductions in HVAC energy demand and better storm water absorption. Facility construction and renovation projects also include the recycling and reuse of demolition materials to reduce waste going to the landfill. In future environmental reports, it is hoped that the improvements in facilities data management will enable more detailed benchmarking of these facilities in order to illustrate comparative consumption figures with standard building code levels.

ii. Road Construction and Tree Planting (Corporate)

The Region is responsible for a network of approximately 500 kilometres of Regional Roads which require ongoing maintenance and repair along with expansion as this community continues to grow. Current road construction practices include re-use and use of recycled asphalt as a substitute for raw material. Where feasible, pavement structure design is revised to reduce soil excavation and import of new aggregate resources such as gravel. An estimated 8000 cubic meters of soil and gravel were reduced in 2007 for an average of 30% (8000 m$^3$) soil and gravel were reduced for 2007.
2.5.2 Materials Management (Corporate)

i. Green Purchasing Guidelines

<table>
<thead>
<tr>
<th>Actions:</th>
<th>Potential Future Initiatives:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Purchasing by-law on environmentally sound acquisitions - 2004</td>
<td>• Enhanced staff education on green procurement principles</td>
</tr>
<tr>
<td>• Corporate Green Purchasing Program - 2006</td>
<td></td>
</tr>
</tbody>
</table>

The Region is a large consumer, spending some 27% of its annual budget on goods and services. Green purchasing involves a review process for goods and services that reduce impact on environmental resources. The roots of green procurement practices within the region’s Finance department date back to 1993 with the purchasing of environmentally friendly glues and paints. The Region also hosted a green purchasing workshop at that time for other buyers within the community to network and explore best practices on this topic.

In 2004, a purchasing by-law was crafted regarding environmentally sound acquisitions in fulfilling the various materials needs of the seven departments within the Regional Municipal organization. In 2006, a Council directive resulted in the development of a corporate Green Purchasing Program. The scope of the program includes office equipment, recyclable paper, hybrid vehicles, alternative fuels, HVAC systems all including current state of the art environmental content and design considerations.

Some departments had already begun practicing these environmentally responsible purchasing practices prior to the introduction of the program. The following list captures a sample of acquired products and services that have considered the environment in their application within Regional operations:

- installation of carpet with minimum 30% recycled content;
- use of solvent free degreasers and non-silicate based floor dry in fleet centres;
- office paper with 30% post-consumer recycled content;
- paper towels with 100% recycled content;
- environmentally friendly cleaning products used by housekeeping services; and,
- computers, copiers and other office equipment that meet Energy Star standards (e.g. superior energy efficient performance).

This list excludes previously mentioned products purchased by the Region such as energy efficient lighting, energy saving devices for HVAC systems, alternative vehicles fuels, pollution control equipment for vehicles, hybrid vehicles, green energy technologies, environmentally friendly building materials, low-flow toilets, use of contracted bike courier service and use of remanufactured toner cartridges. As the program matures, enhanced staff education will be introduced to further influence purchases not currently utilizing green procurement principles.

The efforts to reduce paper use, for example by encouraging double sided printing, have already yielded results. Nearly 700,000 sheets of office paper were reduced in 2006 compared to 2005 usage. All recently installed photocopiers are capable of this duplex (two-sided) printing. Reduction of paper use via printing is also encouraged within e-mail messages, increased use of routing slips for circulated documents and viewing on-line to reduce print overruns. More widespread promotion throughout the Regional organization is planned in 2008 and year-to-year comparisons are expected in Spring 2009.
2.6 Community Development and Environmental Preservation

Growth of urban areas and resulting demands on natural resource by the economy are two of the greatest challenges to sustainability. Herman Daly, former Chief Economist for the World Bank, put this into perspective with a metaphor to differentiate between growth and development in a sustainability context. Daly said that if the economy was an animal, economic growth would imply bigger teeth, eating faster and consuming more. Whereas (community) economic development implies eating higher quality food and taking the time to digest properly for better overall health.1

This conscientious development advocated by Daly can qualitatively improve our communities while reducing demand on the natural environment and resources that sustain us.1 In past decades, growth of settlement areas and economic growth in general has seriously impaired land, water, air resources and biodiversity as a result of sprawling urban areas and unsustainable infrastructure development in many regions of the developed world. In turn, this has all too often detracted from quality of life.

This section looks at some of the policies and programs that the Planning, Housing and Community Services and the Public Health departments have delivered over the years to mitigate some of the environmental consequences of rapid population and regional growth. Table 10 lists the main initiatives within the scope of this section.

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1 See Daly’s work referenced earlier within this report in Section 1.4 “What is Sustainability.”
### Table 10. Summary of Regional Community Development and Environmental Preservation Initiatives

<table>
<thead>
<tr>
<th>Initiative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Listed only</td>
</tr>
<tr>
<td>Community Development</td>
</tr>
<tr>
<td>Regional Official Policies Plan and Regional Growth Management Strategy</td>
</tr>
<tr>
<td>Brownfield Development &amp; Community Improvement Plan</td>
</tr>
<tr>
<td>Local Food Systems</td>
</tr>
<tr>
<td>Urban Design Improvements and Health Impacts</td>
</tr>
<tr>
<td>Healthy Growth Initiative</td>
</tr>
<tr>
<td>Environmental Preservation</td>
</tr>
<tr>
<td>Environmental designations</td>
</tr>
<tr>
<td>Greenlands Strategy</td>
</tr>
<tr>
<td>Moraines Policy</td>
</tr>
<tr>
<td>Conservation easements</td>
</tr>
<tr>
<td>Environmental Protection Education/Partnerships</td>
</tr>
<tr>
<td>“Green” Theme at Joseph Schneider Haus</td>
</tr>
<tr>
<td>Pesticide education</td>
</tr>
<tr>
<td>Air Quality activities</td>
</tr>
<tr>
<td>Private well protection</td>
</tr>
</tbody>
</table>

#### 2.6.1 Community Development

i. **Regional Official Policies Plan and Regional Growth Management Strategy (Community)**

Actions:
- 70 projects are underway as part of implementing the 2003 Regional Growth Management Strategy

Under the Ontario Planning Act, all municipalities are required to have an official plan to guide future growth and development. The Regional Official Policies Plan (ROPP), the first of its kind in Ontario, has been providing the policy framework for planning and managing regional growth and associated transportation, water and wastewater and human services needs since 1976. With this broad scope, the ROPP addresses issues that affect all areas of environmental concern either directly or indirectly, and promotes collaborative partnerships and cooperation with other stakeholders in the community. The Region has embarked on a planning process to develop a new Regional Official Policies Plan. The new ROPP will incorporate the province’s planning reform initiatives and growth management objectives as well as build on the regional initiatives currently underway through the Regional Growth Management Strategy. The draft ROPP is expected in 2008.
The Regional Growth Management Strategy (RGMS) builds on the ROPP and is intended to serve as an overarching framework to help guide Regional decision-making over a forty-year planning horizon. Adopted by Council in 2003, the RGMS is a proactive long-term strategy intended to ensure that the 'region’s future is planned by design and not by chance'.

The RGMS, which was developed with extensive public consultation, includes six goals listed below in Table 11 along with examples of the 70 projects reflecting the goals already in progress. Four of these sample projects (italics/underlined) are included with further details in this section to give the reader a general idea of how integrative these initiatives are in working towards a balance between environmental sustainability, economic prosperity and healthy communities. The RGMS will lead to an update of existing master plans, including the preparation of the new ROPP as mentioned.

### Table 11. Summary of RGMS Goals and Related Projects

<table>
<thead>
<tr>
<th>RGMS Goal</th>
<th>Sample Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enhancing Our Natural Environment;</td>
<td><strong>Regional Forest Master Plan</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Environmentally Sensitive Landscapes (ESLs)</strong></td>
</tr>
<tr>
<td>Building Vibrant Urban Places</td>
<td>Reurbanization Market Analysis/Feasibility Study</td>
</tr>
<tr>
<td></td>
<td><strong>Urban Design Improvements and Health Impacts</strong></td>
</tr>
<tr>
<td>Providing Greater Transportation Choice</td>
<td>Rapid Transit Environmental Assessment</td>
</tr>
<tr>
<td></td>
<td>Cycling Master Plan</td>
</tr>
<tr>
<td>Protecting Our Countryside</td>
<td><strong>Local Food/Agriculture Systems Viability studies</strong></td>
</tr>
<tr>
<td></td>
<td>Countryside Line Policy Development/Design</td>
</tr>
<tr>
<td>Fostering a Strong Economy</td>
<td>Accelerator Centre Partnership</td>
</tr>
<tr>
<td></td>
<td>Housing Incentives and Funding Resource Guide</td>
</tr>
<tr>
<td>Ensuring Overall Coordination/Communication</td>
<td>Regional Official Policies Plan update (2006-2009)</td>
</tr>
<tr>
<td></td>
<td>Grand By Design tour and education series</td>
</tr>
</tbody>
</table>

An important part of the consultation that has contributed to the current ROPP review includes input from the Ecological and Environmental Advisory Committee (EEAC) whose members include citizen appointees and Regional Councillors. The EEAC provides advice to staff on a variety development and environmental planning issues. A sub-committee of EEAC met with Regional staff nine times during the year 2007 to address to review existing ROPP policies and advise potential revisions and new policies. Environmental sustainability was a core principle of EEAC’s input and their final recommendations specifically covered issues such as air quality, climate change, alternative energy production, groundwater protection, natural heritage preservation and enhancement as well as maintaining a viable agricultural community to name just a few.
ii. Local Food and Urban Agricultural Systems (Community)

Actions:
- Community - Shared Food System Plan for Waterloo Region – 2007
- Creation of the Waterloo Food System Roundtable - 2007
- Diggable Communities Collaborative – 2006
- Development of a Local Farms Map – 2002 - 2005

Active support of our local food systems can reduce air emissions, protect foodlands and water resources, sustain the local agricultural economy as well as improve liveability of reurbanized neighbourhoods. Evidence suggests that the presence and proximity of healthy food choices, especially in highly populated urban areas, is an important precursor of a healthy diet. Increased consumption of locally produced food also decreases our dependence on long distance food transport, reduces associated air emissions and helps to support a viable local agricultural economy.

In a recent Public Health study, imports of 58 commonly eaten foods were found to have been transported an average of 4,497 km to Waterloo Region. These imports account for 51,709 tonnes of GHG emissions and other air pollutants annually, contributing to climate change and smog production, which both have an effect on human health. If the 58 studied food items were replaced with products of South-western Ontario an annual reduction in GHG emissions of 49,485 tonnes would be achieved, equivalent to taking 16,191 cars off our roads.

Region of Waterloo Public Health engages in comprehensive community food systems planning which provides an integrated response to the wide-ranging food related problems that affect the environment and the public’s health. A community food system approach examines the broader environment in which food is produced and made available and attempts to enhance it in order to improve health. Strategies to strengthen the local food system and make purchasing local food more convenient for consumers have the potential to reduce the environmental impact of food miles in Waterloo Region.

In addition to being a promising practice to improve air quality, community food systems initiatives contribute to the economic viability of local agriculture and the preservation of agricultural landscapes. Public Health has provided support for local producers through initiatives such as:

- The development of a community-shared food system plan for Waterloo Region, and the creation of the Waterloo Region Food System Roundtable as a body to network and oversee that plan’s implementation
- The development of a direct from local farms map jointly with Foodlink Waterloo Region (who now has taken over publication of the map)
- The development and feasibility testing of neighbourhood based local produce markets as a means of strengthening farm viability and improving urban food access

Localising the food system also includes activities related to expanding urban agriculture. Links between urban agriculture and community gardens and air quality, urban heat islanding, energy efficiency, climate change, habitat loss, social isolation, crime prevention and food insecurity have been documented. In an inventory completed in 2005, there were 31 community gardens offering at least 679 individual plots to gardeners and at least 6 rooftop gardens in the Region of Waterloo. Further, 38% of all urban residents in the Region indicate that they grow some of their own food. In 2006, Public Health facilitated the creation of the Diggable Communities Collaborative to reduce barriers and ensure systems are in place to sustain community gardens.
iii. Urban Design Improvements and Health Impacts (Community)

Actions:
- Monitor outcomes of the Regional Growth Management Strategy using the Geographic Information System Walkability and Accessibility Tool

Designing for “mixed” or “complete” communities is associated with shorter trips and a modal shift from automobiles to pedestrian, bicycle and transit travel. When retail and employment uses are close together, it also makes it possible for people to combine trips, such as shopping or errand trips with commuting. This reduces the total number of trips taken by automobile, reduces emissions, and increases physical activity.

Researchers from the University of Waterloo, University of British Columbia and the University of Alberta are partnering with the Region of Waterloo to conduct an innovative three year research project that combines the creation of a Geographic Information System (GIS) based walkability and accessibility surface with travel, physical activity, food purchasing, and neighbourhood preference data. Coordinated by Public Health, the project will take place during 2008-2010 and is funded by the Canadian Heart and Stroke Foundation. This tool will allow staff to:

1) Identify areas within Waterloo Region that need attention to make them more walkable;
2) Model and Evaluate the expected impact of proposed development projects and how they will impact the walkability of the surrounding area; and,
3) Monitor the outcomes of the Regional Growth Management Strategy.

iv. Healthy Growth Initiative (Community)

Actions:
- Released Healthy Growth: Health and Built Environment Report – 2007
- Public engagement through a series of forums related to health and the built environment

Anticipated Results:
- Understanding how integrative public policy can render air quality, fitness and local food systems benefits.

As part of the robust collaboration between the Planning Housing and Community Services and Public Health departments associated with the RGMS, the Region is promoting a wider understanding of the ways in which the built environment can affect health. In 2007, Public Health released “Healthy Growth: Health and the Built Environment”, a report which describes the ways in which elements of community planning (i.e.: urban design, reurbanization, transportation, housing and rural land use) interact with the socio-economic environment to support community health. This initiative looks at the integrative links between urban design and transportation infrastructure improvements for example, and potential air quality, fitness and local food systems benefits to be realized.
The report has become an important citizen engagement and policy development tool. The Ontario and Waterloo Region Healthy Communities coalitions are using the report as a framework for organizing a series of forums related to health and the built environment. This important element of public engagement is parallel to the regular practice within the ROPP review and RGMS implementation process and is the primary mechanism for community involvement in developing healthy development policies, strategies and actions.

“A healthy community is one that recognizes the interplay between people and their surroundings, and takes steps to modify the built environment in ways that make healthy options easier and mitigates harmful outcomes.”

2.6.2 Environmental Preservation

viii. Environmental Designations (Community)

Actions:
- Protecting land through the use of two land designations: Environmentally Sensitive Policy Areas and Environmentally Sensitive Landscapes

Results:
- 77 ESPA’s protecting over 17,000 acres of land
- 2 new ESL’s protecting 8,500 acres of land

Potential Future Initiatives:
- Tracking the amount of land area protected by various environmental designations

Within the authority of the Region’s Planning department, there are a number of mechanisms that can be used to protect natural areas from development. Significant wetlands, Environmentally Sensitive Policy Areas (ESPA’s) and Environmentally Sensitive Landscapes (ESL’s) are all examples of innovative land designations pioneered by the Region that help preserve local natural areas and Regional biodiversity, and in the process, these land designations also benefit water and air quality and contribute to the character and quality of life of the region.

Since 1976, 77 ESPA’s have been designated in the ROPP to protect over 17,000 acres of land. Additional ESPA’s are proposed as the Planning department compiles and analyzes the necessary information to afford the protective designation. During the years 2005-2007, the Region and Ontario Municipal Board has amended the ROPP to protect approximately 8500 acres of land in the two new ESL designations. Policies are also being developed to constrain the level of development in the Moraines area. Future environmental reports may include tracking of the total number of designations and land area protected by various environmental designations.
ix. Greenlands Strategy (Community)

Actions:
- Greenlands Strategy adopted in 2005 to preserve and manage natural areas

Results:
- Preserving 11,000 acres for public recreation and environmental conservation under the Regional Forest Management Plan

Natural area conservation including managing forested areas has been highlighted as key to many other environmental goals ranging from water quality, biodiversity conservation and climate change. In effort to ensure a better stewardship of the Region’s natural biodiversity at a time of rapid growth, the Greenlands Strategy was adopted in 2005 as a comprehensive framework to preserve and manage natural areas. Greenlands Strategy projects include:

- Greenlands Mapping - a collaborative GIS initiative involving area municipalities, the GRCA and the Ministry of Natural Resources
- Valleylands – uses scientifically sound identification criteria to map and develop policies to guide supportive development and stewardship within our major river valleys
- Woodlands – based on provincial policy statements that require municipalities to include significant woodlands in appropriate planning policies
- Environmentally Sensitive Landscapes – will exclude incompatible development and promote informed stewardship in the Laurel Creek Headwaters and has aided in protecting the Blair-Bechtel Cruikston ESL
- Source Water Protection – addressing the roles of the Region and Conservation Authority in protecting groundwater recharge and quality
- The Regional Forest Management Plan (RFMP) – setting out the main goals and objectives for the years spanning 2007-2026 to sustainably manage 9 forests previously handled by the Ministry of Natural Resources

The RFMP covers all 11 Regional forests along with five other woodlands owned by the Region. In total this covers almost 1100 acres preserved for public recreation and environmental conservation. In addition, as part of the Region of Waterloo Planning department natural areas stewardship, there are 14 conservation easements in place on private land with another five proposed.

The environmental preservation initiatives listed here involve cooperation and partnership building among various stakeholders, knowledgeable ecological assessment of natural resources and hands-on management of the various areas managed by the Region and its partners. This is necessary to afford a positive environmental legacy for future generations.
x. Environmental Protection Education/Partnerships (Community)

**Actions:**
- Pesticide Reduction Campaign – ongoing since 2005
- Regional Pesticide By-law – 2007
- Idling Reduction and Education Campaign – 2002/2003
- Private Well Water Education and Outreach Campaign - 2004

**Potential Future Initiatives:**
- Re-establishing an Idling Reduction and Education Campaign

There are many environmental education initiatives that different Regional departments have delivered, some already mentioned in other sections of this report. It is not practical to capture every initiative of this kind as this is not a comprehensive scan of such education programs. However, a brief summary of four Regional initiatives are included below.

**“Green” Living**
The Region owns and operates the historical Joseph Schneider Haus as a museum open to the community. Starting in Christmas 2007, the museum initiated a unique environmental promotion theme for both internal operations and demonstrations for visitors. The initiative uses the old adage “use it up, wear it out, make it do or do without” to illustrate how historically, the Schneiders lived in a time where sustainability was a necessity of life rather than a choice. The museum will highlight how local forebears mastered re-use and recycling as well as conservation practices to patrons. Special exhibits, workshops, unique school programmes and lectures and various environmental topics will be offered throughout 2008.

**Pesticide Reduction**
Pesticides applied to urban areas have shown to impact local surface water such as rivers and streams. Additionally, due to the possibility of harm to human health, the Region’s Medical Officer of Health advised that the precautionary principle should be followed as support for actions such as a local by-law and education initiatives to help avoid the non-essential use of pesticides.

Region of Waterloo Public Health, in conjunction with all local municipalities have delivered a comprehensive community-based social marketing campaign on pesticide reduction since 2005. The campaign has involved:
- Mass media communications (TV radio, newspaper, bus and bus shelter advertising);
- Information packages delivered door-to-door by University students to targeted neighbourhoods;
- Community workshops and displays at special events;
- An lawn care best practices forum for local retail store and garden centre staff;
- Staffed booths at retail outlets where pesticides and other lawn care products are sold, and;
- An informative website providing information on alternatives to pesticides ([www.letscurbpesticides.ca](http://www.letscurbpesticides.ca)).

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[j] A more detailed scan of major Regional environmental education programs has been proposed in 2008 as part of the Environmental Strategy development.

[k] See [www.letscurbpesticides.ca](http://www.letscurbpesticides.ca)
A significant amount of primary research was conducted to determine individual knowledge and behaviours regarding pesticide use and the barriers to adopting healthy lawn care practices. In addition, target neighbourhoods were identified based on this research. A region-wide baseline survey was conducted in 2004 and repeat surveys were conducted in the following years to determine the effectiveness of the community-based social marketing campaign. Figures 18 and 19 illustrate some noted improvements from 2004-2006.¹

¹ A new format of evaluation was implemented for 2007 and does not become available until later in 2008.
Figure 18 illustrates the increase in number of survey respondents who only use pesticides for spot spraying in problem areas as opposed to applying chemicals to the entire lawn. During the community education workshops in 2006, this practice was said to reduce pesticide use by up to 80%. In addition, the campaign promoted healthy lawn care practices which reduced or eliminated the need for pesticides (see Figure 19).

This education campaign was used to generate increased awareness and use of healthy lawn care methods prior to the enactment of the Regional pesticide by-law. It was recognized that education is a supplementary tool to be used in enforcement of rules pertaining to (non-agricultural) pesticide use in this community. Although the by-law has been in place since January 2007, the education campaign is continuing with its efforts to provide essential information to the community which enables more environmentally friendly decisions to be made at the property owner level.

**Air Quality Activities**

Air quality has been an expressed priority for this community as this region experiences high levels of air pollution similar to other communities in southern Ontario. Public Health recently completed a preliminary assessment of air quality health impacts in urban areas of Waterloo region in February 2008. Overall, air quality trend data revealed that Waterloo region experienced a decline in some air quality measures with increased levels of PM$_{2.5}$ and O$_3$ between 2000 and 2006. The study also confirmed that there are a cascading pyramid of health effects, ranging from hospitalization to premature deaths, associated with poor air quality levels experienced in this region and much of southern Ontario.

Public Health has delivered a wide variety of education programs to the public, special interest groups, and area municipalities in efforts to reduce both exposure and contributions to local emissions. During 2004-2006, Public Health distributed 14,000 printed resources, addressed 150 email and telephone inquiries, provided 22 presentations and had 57 media hits in local television, radio and newspapers.

An example of a focused education initiative is the Idling Reduction and Education Campaign (IREC). In 2002/2003, a collaborative effort between the region, local municipalities and the Citizen’s advisory Committee on Air Quality developed a Community-based social marketing campaign to encourage behavioural change with regard to avoiding unnecessary idling of vehicle engines. The campaign, which included pre and post campaign analysis with researchers from the University of Waterloo, targeted 5 schools and the three downtown areas of Cambridge, Kitchener and Waterloo. Figures 20 and 21 illustrate the results achieved by this campaign.

There is currently local interest to re-establish an idling reduction and education campaign. Region of Waterloo Public Health has formed an affiliation with a community group called Reduce the Juice with a pending funding proposal to access a federal grant program.

The Region also facilitates a local partnership, Waterloo Region Partners for Clean Air (WRPCA), a collaborative of public institutions (municipalities, hospitals, school boards, colleges and universities). The Region participates in WRPCA through its internal Interdepartmental Clean Air Committee (ICAC) and has worked with the partnership in developing the Clean Air Plan which essentially commits the group to networking, sharing emission reduction strategies and reporting achievements to the community. The Region’s internal ICAC group has been working together on their corporate emission reduction strategies since 2002. The Region also adopted anti-idling protocol for their fleet vehicles in 2002 from the earlier work achieved by the Citizen’s Advisory Committee on Air Quality.
Figure 20. Affect of anti-idling campaign on number of idling vehicles at selected sites.

Figure 21. Affect of anti-idling campaign on duration of idling at select sites.
Private Well Water Protection

Region of Waterloo Public Health has been providing education materials to private well owners/users since 1992 when their “How Well is Your Well” educational materials were distributed to rural schools and townships. In the year 2004, the Ontario Ministry of Health and Long-Term Care recognized this work and selected Region of Waterloo Public Health to administer a province-wide private well water education and promotion program for all public health units in Ontario. Promotional materials were in part provided by the province with Public Health developing a supportive education and outreach campaign for use by all health units targeting private well water users.

The ‘Keeping Your Well Water Safe to Drink’ kits were developed by the provincial ministries of Environment, Health and Agriculture and provided owners and users of private water systems with information to protect, maintain and remediate their wells as necessary. This focus, although heavily linked to mandated health unit services for supporting private well water sampling, has a laudable secondary focus of ensuring greater protection of groundwater resources shared by all in the Region. By preventing contamination of private wells, the quality of groundwater aquifers is preserved from incidents such as accidental spills, leaking fuel storage tanks and infiltration from agricultural activities (manure storage, nutrient management).

The Region’s Public Health department used a variety of methods to promote the education campaign such as:

- Development and distribution of large screened posters for all public health units in the province;
- Rural newspaper and local radio advertisements;
- School programs;
- Public information sessions;
- Workshops for community agencies to help introduce the well water campaign to other partners within the region, and;
- Working with township offices to help distribute the kits and related information.

Approximately 1285 information kits were distributed in target areas within the first two years of the program. The advertising programs through local newspapers and radio stations were successful and continued on in future years. In 2006, Public Health also taught students at a Children’s Groundwater Festival activity centre held at Doon Heritage Crossroads.
3.0 NEXT STEPS

Throughout this report references were made to future data collection activities. These activities may influence the quality and quantity of data presented in future Regional environmental reports. Briefly, the following is a list of areas where more substantive environmental information may become available in the near future:

- Water use from Regional facilities
- Amount of waste diverted from Regional operations
- Energy savings and emission reductions from the entire Regional organization
- Energy benchmarking of Regional facilities
- Reduction in office paper use
- Total number of designations and land area protected by various environmental designations

It is recognized that the Region needs to improve its reporting of environmental information to the community. Therefore, it is the intent within the environmental strategy development process to establish ongoing reporting of environmental achievements similar to the contents of this report. However, future reports may focus more specifically on ongoing initiatives and key progress indicators associated with targets established within the pending environmental strategy. The current list of initiatives captured in this report is summarized in Appendix A.

Although the bulk of this report was influenced by what data was available to staff, improved data collection and analysis is an important need for more concise, comprehensive and meaningful results to be reported in the future. Throughout the remainder of the strategy development process, these types of needs will be considered in making Environmental Sustainability Strategy recommendations to Regional Council over the next 12 months.
Appendix A. Summary of Environmental Initiatives
<table>
<thead>
<tr>
<th>Category</th>
<th>Initiative</th>
<th>Environmental Benefit</th>
<th>ROW Operations</th>
<th>Community</th>
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<tbody>
<tr>
<td><strong>Transportation</strong></td>
<td>ROW Corporate Fleet Management</td>
<td>Air</td>
<td>X</td>
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<td></td>
<td>Public Education and Awareness</td>
<td>Water</td>
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<td></td>
<td>Groundwater Quality and Level Monitoring</td>
<td>Water</td>
<td>X</td>
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<td></td>
<td>Groundwater Protection at Regional facilities</td>
<td>Water</td>
<td>X</td>
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<td></td>
<td>Enforcement - sewer-use By-law &amp; Spills Response</td>
<td>Water</td>
<td>X</td>
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<td></td>
<td>Spills Prevention Workshops</td>
<td>Water</td>
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<td></td>
<td>Rural Water Quality Program</td>
<td>Water</td>
<td>X</td>
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<td></td>
<td>Municipal road salt reduction</td>
<td>Water</td>
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<td></td>
<td>Private salt reduction</td>
<td>Water</td>
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<tr>
<td><strong>Water Conservation and Protection</strong></td>
<td>Waste Conservation and Efficiency Measures</td>
<td>Water/Air</td>
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<td>Water Conservation By-law</td>
<td>Water/Air</td>
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<td></td>
<td>Residential Education and Awareness</td>
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<td>Industrial, Commercial &amp; Institutional (ICI) Sector Programs</td>
<td>Water/Air</td>
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<td>Rain Barrel program</td>
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<td>Toilet improvements</td>
<td>Vehicle</td>
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<td>Xeriscape demonstration gardens</td>
<td>Water/Air</td>
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<td><strong>Waste Management</strong></td>
<td>Waste Diversion/Reduction</td>
<td>Land/Water</td>
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<td>Waste Management ‘Master Plan’</td>
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<td>Waste diversion from Regional facilities/operations</td>
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<td>Cambridge composting facility</td>
<td>Land/Water</td>
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<td>Waste Management Education</td>
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<td>Air/Land/Water</td>
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<td><strong>Energy Reduction</strong></td>
<td>Environmental Management Controls</td>
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<td>Environmental Management System</td>
<td>Air/Land/Water</td>
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<td>Rehydration of Waterloo Landfill</td>
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<td>Environmental Sustainability</td>
<td>Air/Land/Water</td>
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<td>IOC Waste Directory</td>
<td>Land/Water</td>
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<td>Tours, presentations &amp; displays</td>
<td>Land/Water</td>
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<td><strong>Energy Production</strong></td>
<td>Energy Production</td>
<td>Land/Water</td>
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<td>Landfill gas capture</td>
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<td>Renewable energy production</td>
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<td>Retrofit to regional corporate facilities</td>
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<td>Energy efficiency upgrades</td>
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<td>Energy demand policies and staff education</td>
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<td><strong>Energy Management Infrastructure</strong></td>
<td>Energy and Environmental Management System</td>
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<td></td>
<td>Development of Energy Office</td>
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<td><strong>Facility Construction and Materials Management</strong></td>
<td>Facility and Road Construction</td>
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<td>Leadership in Energy and Environmental Design and Green Roofs</td>
<td>Air/Land/Water</td>
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<td>Road Realignment</td>
<td>Land/Water</td>
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<td>Tree planting in road projects</td>
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<td>Construct mudslopes in place of grassed/sidewalks</td>
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<td>Regional transportation links</td>
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<td>Stormwater management and soil erosion control</td>
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<td>Green purchasing guidelines</td>
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<td>Energy Star Standard for office machinery/equipment</td>
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<td>Community Development and Environmental Preservation</td>
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<td>Regional Official Policies Plan and Regional Growth Strategy</td>
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<td>Brownfield Development and Community Improvement Plan</td>
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<td>Local Food Systems</td>
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<td>Urban Design Improvements and Health Impacts</td>
<td>Air/Land/Water</td>
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<td>Healthy Growth Initiative</td>
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<td><strong>Environmental Preservation</strong></td>
<td>Environmental Protection Education Partnerships</td>
<td>Land/Water</td>
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<td>“Green” theme at Joseph Schneider Haus</td>
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<td>Pesticide education</td>
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<td>Air Quality activities</td>
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<td>Private well education</td>
<td>Water</td>
<td>X</td>
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</table>
ENDNOTE REFERENCES:


2 See http://en.wikipedia.org/wiki/World_population


5 Paraphrased from Daly, Herman E., John Cobb Jr., “For the Common Good”, 1989.


11 All estimates provided by ROW’s Interdepartmental Clean Air Committee 2003-2006.


13 Data provided by ROW Transportation Planning division.


19 www.region.waterloo.on.ca/web/region.nsf/c56e308f49bfe7885256abe071ec9a988f85bdc3f386b585256afe005f6afe!OpenDocument

20 www.movingforward2031.ca/downloads/TMPbooklet_PW1.pdf


27 Region of Waterloo Planning and Works Committee report #E-08-008, “Rural Water Quality Program”, January 29, 2008.


29 www.region.waterloo.on.ca/smartaboutsalt


33 Region of Waterloo Water Services, Dec. 2007.

34 www.region.waterloo.on.ca/web/region.nsf/8ef02c0f6ed0c82a85256e590071a3ce/6f2dde12d0afa6baa85256c760073cc54!OpenDocument
Region of Waterloo Past and Present Environmental Initiatives (May 2008)

www.region.waterloo.on.ca/web/region.nsf/8f9c046037662cd985256af000711418/d8c27d19a2463bbd85256b05006c97bf!OpenDocument

Region of Waterloo Waste Management, “2006 Key Indicator Report.”
Region of Waterloo Waste Management, Environmental Policy, March 5, 1998.
Data provided by Toromont Energy Ltd., 2007 and 2008.
Region of Waterloo, Interdepartmental Clean Air Committee 2003 update from Facilities Energy Specialist.
Region of Waterloo Public Health - Environmental Health & Lifestyle Resources air quality program data analysis.
Region of Waterloo, Community Services Committee report # P-07-130, “Celebrating Green at Joseph Schneider Haus” December 4, 2007
Region of Waterloo Public Health - Environmental Health & Lifestyle Resources private water program files.
Region of Waterloo Public Health - Environmental Health and Lifestyle Resources private water program files.
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TO: Chair Tom Galloway and Members of the Administration & Finance Committee

DATE: May 13, 2008

FILE CODE: C06-20

SUBJECT: TENANT CHANGES AT 150 MAIN STREET - UPDATE

RECOMMENDATION:

For information.

SUMMARY:

Nil

REPORT:

Background

On April 1, 2008 report CR-FM-08-010 requested and received approval to expend $96,000 to relocate DHI Water & Environmental Corporation (DHI) and a Regional program to provide approximately 4,800 square feet of contiguous space on the third floor for Conestoga College. Since that report was written, extensive negotiations have occurred with all of the parties involved. After further consideration, DHI decided not to relocate to the second floor. As a result the Region was not able to provide contiguous space on the third floor and Conestoga College withdrew its offer to lease.

Since then the College has reconsidered and agreed to lease approximately 4,800 square feet on the 1st and 3rd floors of the building.

Revised Renovation and Relocation Plan

As a result of this change, the areas to be renovated are different than initially reported in CR-FM-08-010 but the funding level to complete the landlord work remains the same (i.e. $96,000).

The revised renovation plan includes:

1. Relocation of the Intake Section of Employment and Income Support Division to a new location on the 3rd floor and modifications for their use
2. Renovation of the 1st floor space to be occupied by Conestoga College to include a new HVAC system, new windows and a sprinkler system.

Conestoga College is responsible for all leasehold improvements to the tenant space.

Another change is the decision of Conestoga College to enter into a four year versus a five year lease agreement so both leases (i.e. the existing one on the 4th floor and the new one for the 1st and 3rd floors) will terminate at the same time. The lease with Conestoga College will be executed by the Commissioner of Corporate Resources as per By-law number 06-034.
CORPORATE STRATEGIC PLAN:

The renovation and relocation plan for 150 Main Street which makes the building fully leased demonstrates good asset management as contemplated in Focus Area 5: Infrastructure.

FINANCIAL IMPLICATIONS:

Council approved the expenditure of $96,000 in Report CR-FM-08-010 dated April 1, 2008 to renovate space for the lease of 4,800 square feet to Conestoga College for English as a Second Language program. The cost of the new renovation and relocation plan is the same as was approved in Report CR-FM-08-010 and no additional funds are necessary.

The revenue from the lease will be reduced from $204,000 (for the five year lease) as initially reported in the April 1, 2008 report. to $163,200 (for the four year lease)

OTHER DEPARTMENT CONSULTATIONS/CONCURRENCE:

Finance has reviewed this report and their comments have been included as appropriate.

ATTACHMENTS: Nil

PREPARED BY: Kathy Long, Manager of Business Services

APPROVED BY: Gary Sosnoski, Commissioner Corporate Resources
TO: Chair T. Galloway and Members of the Administration and Finance Committee

DATE: May 13, 2008

FILE CODE: L01-00

SUBJECT: SAFER COMMUNITIES – 1,000 OFFICERS PARTNERSHIP PROGRAMME (MINISTRY OF COMMUNITY SAFETY AND CORRECTIONAL SERVICES) – RENEWAL AGREEMENT

RECOMMENDATION:

That the Regional Municipality of Waterloo enter into a renewal agreement for the “Safer Communities – 1,000 Officers Partnership Programme” with her Majesty the Queen by the Minister of Community Safety and Correctional Services effective April 1 2008 to March 31, 2010 as described in Report CR-RS-08-023; and

That the Region’s Chief Financial Officer be delegated authority to sign all reports to the Ministry on behalf of the Regional Municipality of Waterloo as required under such Agreement.

SUMMARY: Nil

REPORT:

Pursuant to an Agreement dated February 8 2006, the Ministry of Community Safety and Correctional Services (the “Ministry”) has provided funding to Waterloo Regional Police Service under the “Safer Communities – 1,000 Officers Partnership Programme” for the purpose of increasing the number of sworn police officers to meet the objectives of the programme. The objectives of the programme are to enhance community policing and address the six targeted areas identified by the Provincial Government: youth crime, guns and gangs, organized crime and marijuana grow ops, dangerous offenders, domestic violence, and protecting children from Internet luring and child pornography. The Ministry will cost-share approximately 50% of 41 sworn Waterloo Regional police officers to a maximum of $35,000 per officer per annum and these officers will be dedicated full-time to the above-described targeted areas of policing.

The current Agreement expired on March 31 2008. A renewal Agreement has been provided by the Ministry which would continue funding under the Programme until March 31 2010. The renewal Agreement is substantially similar to the original Agreement in its terms and conditions. The Ministry reserves the right to terminate the Agreement at any time without reason on thirty days’ prior notice without any liability, cost or penalty and this provision was non-negotiable. The Ministry also requires standard insurance and indemnification with respect to Police Service activities.

The Ministry requires both the Region and the Police Services Board to sign the Agreement. The Waterloo Regional Police Services Board approved this Agreement at its meeting on April 23, 2008.

CORPORATE STRATEGIC PLAN:

The recommendation of this Report is in furtherance of the Plan’s Focus Area of fostering healthy and safe communities.
FINANCIAL IMPLICATIONS:

Police Service staff advises that, under the proposed Agreement, the Ministry of Community Safety and Correctional Services will provide recoverable funding up to 50% of the salary, overtime, and benefit costs to a maximum of $35,000 per officer per year for the 41 officers approved under this programme for a total maximum eligible annual funding of $1,435,000.

Further, Police Services staff advises that the 2008 Police Services Board budget includes anticipated recoverable funding totaling $1,303,000 which represents 90% of the total eligible funding. Subject to attrition and progression through the ranks, the funding is expected to reach its maximum in the 2009 budget year.

OTHER DEPARTMENT CONSULTATIONS/CONCURRENCE:

Waterloo Regional Police Services staff provided input in the preparation of this Report.

ATTACHMENTS:  Nil

PREPARED BY:  Debra Arnold, Regional Solicitor, Director of Legal Services

APPROVED BY:  Gary Sosnoski, Commissioner, Corporate Resources
THE REGIONAL MUNICIPALITY OF WATERLOO
AUDIT COMMITTEE

Report of the Audit Committee

The Audit Committee recommends as follows:

1. THAT the Regional Municipality of Waterloo approve the Audit Committee Terms of Reference, dated May 8, 2008 (attached)

2. THAT Administration and Finance Committee approve the minutes of the Audit Committee dated May 8, 2008 (attached)

May 8, 2008
Terms of Reference
Audit Committee (AC)

1. **Name of Committee**
   - The Audit Committee was established by Regional Council on April 30, 2008.

2. **Purpose/Mandate/Scope**
   - The Audit Committee was established to monitor the effectiveness and efficiency of Regional programs. The Audit Committee will focus on corporate accountability by reviewing/directing the following:
     - Financial Audit and Statements including presentations from the External Auditor
     - Receipt of the Annual Financial Statements and Management Letter
     - Review and recommend approval of the External Audit Plan
     - Review and if necessary recommend approval of the Internal Audit Plan
     - Review of individual Internal Audit Reports
     - Review of Program Review Reports
     - Monitor the Progress of the Implementation of Tangible Capital Asset Accounting
     - Receive/Initiate Special Audits (e.g. transit audit)

3. **Reporting**
   - The Audit Committee will operate as a sub-committee of Administration and Finance Committee.

4. **Committee Membership**
   - The Audit Committee will include the following members:
     - Chair of Administration and Finance Committee;
     - Vice-Chair of Administration and Finance Committee;
     - Chair of Planning and Works Committee;
     - Chair of Community Services Committee;
     - Regional Chair (ex-officio);

   - The Chair of Administration and Finance Committee will Chair the Audit Committee.

5. **Meetings**
   - The Audit Committee will meet at a minimum three times per year at the call of the Chair.

6. **Committee Procedures**
   - The Committee procedures will comply with the Region’s Procedural By-law.

*Dated May 8, 2008*
Present were: Chair T. Galloway, J. Brewer, K. Seiling, S. Strickland, and J. Wideman

DECLARATIONS OF PECUNIARY INTEREST UNDER THE MUNICIPAL CONFLICT OF INTEREST ACT

None declared.

DELEGATIONS

None.

CORRESPONDENCE/INFORMATION

None.

REPORTS

a) Memorandum: Proposed processes for the Audit Committee

Kris Fletcher, Director of Council and Administrative Services/Regional Clerk, advised the committee that the Audit Committee, as a committee of Council, must adhere to legislation with regards to holding open meetings and in needing to pass motions to enter into closed meetings.

K. Fletcher outlined the suggested procedures provided to the Committee and highlighted where certain issues have multiple suggested procedures for the Committee’s consideration.

b) Discussion and Approval of Draft Terms of Reference

The Committee discussed and agreed to procedures for:

- Keeping minutes of the meeting, and approval of the minutes by A&F;
- Delivery of the meeting agenda, reports and attachments to councillors;
- Making recommendations to A&F, or to Council in certain situations;
- Approval of the internal audit plan;
- Consideration of open and closed reports, and of referring open and closed reports to A&F and Council;
- Posting of materials for the Audit Committee meeting to the internet.

The Committee noted specific issues with respect to the Terms of Reference, including the particular language used around approving the internal audit plan, including the external audit plan in the Terms of Reference, and the role of the committee in recommending approval of the internal audit plan to the Administration and Finance committee (A&F). The Terms of Reference, with amendments, are attached to the minutes.
MOVED by J. Brewer
SECONDED by S. Strickland

THAT the Audit Committee approve the Terms of Reference, as amended;

AND THAT the amended Terms of Reference be forwarded to the Administration and Finance Committee for approval.

CARRIED

c) CA-08-001 2007 Internal Audit Report

Joyce Matthison, Internal Auditor, provided a presentation to the Audit Committee to augment information provided in the report, specifically the activities and roles of compliance audits, control consultation and program reviews. A number of examples were provided to highlight key points, and an outlook for proposed 2008 activities was supplied to the Committee.

The Committee obtained clarification on details related to the petty cash example provided by J. Matthison, including discussion around the role of payment cards.

The Committee requested more information on the nature of program review. Mike Murray, Chief Administrative Officer, Larry Ryan, Chief Financial Officer, and Penny Smiley, Commissioner of Human Resources, provided the Committee with an overview of the program review process and the considerations that are made to effectively conduct the process.

The Committee suggested that it would be useful for staff to provide a more in-depth view of the program review and performance measurement processes to the Committee for educational purposes.

The Committee asked if staff is recording the financial savings accrued from internal auditing functions, to which M. Murray responded affirmatively and added that other savings such as reduced risk and improved service are also yielded from internal auditing.

NEXT MEETING - Wednesday June 25th, 2008 at 9:00 a.m.

ADJOURN

MOVED by S. Strickland
SECONDED by J. Wideman

THAT the meeting adjourn.

CARRIED

COMMITTEE CHAIR, T. Galloway

COMMITTEE CLERK, M. Grivicic
RECOMMENDATION:

For information.

SUMMARY: Nil.

REPORT:

Background:
A system of internal controls assists management staff in meeting their responsibilities for the efficient and effective operation of an organization. A well managed control function is dependent upon many factors including organizational processes established to ensure that program objectives are met, clearly defined management responsibilities, external audits of financial information and systems, and internal audits of programs, systems, and processes. In order to ensure an effective control function these components must work in a constructive and mutually supportive manner.

Internal Audit is one key element in a system of internal controls that are part of the Region’s management practices. Internal Audit provides an independent, objective assurance and consulting activity that, together with management practices and external audits, ensures that programs and services are delivered efficiently, effectively, and in compliance with internal policies and external regulations. By evaluating and assessing the control and governance processes and providing tools and methods to enable strong management of resources throughout the organization, internal audit can add value to and improve the Region’s operations.

In 2007, the Internal Auditor’s activities included administrative and organizational tasks, a compliance audit, control consultations, and program reviews. Activities in each of these categories are briefly described below. In addition to the 2007 work summary a preliminary work plan for 2008 is contained in this report.

Administrative and Organizational:
In order to provide program reviews that deliver sound recommendations that, when implemented, will help to improve program operations a good understanding of the purpose of the review, roles and responsibilities, scheduling and reporting, and other associated processes is essential. Following extensive consultation and discussion with staff from the areas involved in the first two program reviews a Program Review Manual was developed by Internal Audit. The manual is intended to provide general information regarding all aspects of program reviews. It was used by staff in both programs that participated in the 2007 program reviews. In addition to the manual, a program review charter was developed in template format. The charter or program review mandate
is completed during the planning phase of each review and helps to clarify details of each project.

During the year and based on an analysis and discussion of its role, the Internal Audit Resource Group (IARG) was reorganized. IARG supports Internal Audit in ensuring that an effective control function exists at the Region. Terms of reference to explain the objectives and responsibilities of the group together with operational criteria were developed and agreed upon. The group was expanded to include representation from all departments.

Compliance Audit:
One compliance audit was conducted in 2007. In previous years both petty cash and purchase card procedures and accounts were tested and evaluated for compliance with procedures and best practice. The tests and review of petty cash accounts in 2007 supplemented the more extensive compliance audits conducted in previous years. The effectiveness of management responses to prior reviews was evident as there were no discrepancies or major problems noted in 2007. Some procedural issues related to single-staff libraries were noted in both 2006 and 2007. Finance will continue to work with Planning, Housing, and Community Service staff to address the concerns.

Control Consultation:
Internal audits are intended to test compliance with legislation, by-laws, procedures, and regulations within the context of good business practice and to provide recommendations based on observations and findings noted during the course of the review. While internal audits provide a formal compliance review process, consulting assignments are developed using the department’s objectives as a basis for reviewing and documenting processes and procedures, identifying key considerations and control points, and suggesting ways in which controls can be strengthened. The acceptance of the Internal Audit function within the Region is reflected in the number of requests in 2007 for consultation. The primary issues addressed through requests for consultation and advice are noted below.

1. Purchase orders and construction contracts
2. Social housing and future templates for Requests for Proposal
3. Wastewater Treatment and assistance in managing a review of administration
4. Dental program and potential control risks in system
5. Child care services and monitoring Ministry audit
6. Corporate Publishing and business plan development and revenue recording
7. EIS control issues associated with inventories and purchase of equipment
8. Canada Revenue Agency payroll audit and monitoring

Program Reviews:
Program reviews are intended to provide an objective evaluation of the efficiency and effectiveness of the program and an assessment as to the identification and management of risk. In this case, risk means the things that could potentially prevent the program from achieving program goals.

A program review attempts to answer the following questions:

1. Are appropriate results being achieved? Is this an effective program?
2. Are we achieving results in an efficient manner? Are we getting good value for the money invested?
3. Are the associated risks managed effectively? Are there control systems and processes in place to assist us in complying with applicable regulations, legislation, and policies?
Are there systems in place to ensure continued compliance?

In 2007, program reviews were conducted in Waterloo Region Housing and in Immunization and Vaccine Preventable Disease and Immunization Services – the administration of the Immunization of School Pupils Act. Staff from both areas were involved in the development, planning, execution, and reporting of the Region’s second group of program reviews. Reports outlining the results of the reviews together with high level plans for implementing the recommendations will be provided to Council.

Brief summaries of the 2007 program reviews are provided below. The findings of the WRH review are described in more detail in Report CA-08-003/PHCS -08-008 and will be presented in June. The findings of the administration of the Immunization of School Pupils Act program review are discussed in Report CA-08-002/PH-08-011 and will also be presented in June.

1. Waterloo Region Housing (WRH)
   The objective of this program review was threefold – to determine whether:
   - The administrative policies and procedures contribute to achieving the program’s goals and objectives. Is the program effective?
   - The resources used to achieve the program objectives are appropriate to the outcomes achieved. Is the program efficient?
   - Policies and procedures are in place to assist in complying with applicable legislation and regulations and to ensure continued compliance.

   Opportunities for efficiency gains, cost savings, and budget reductions were identified and a number of technological, organizational, and process changes were recommended. The implementation of the recommendations is complex and will require additional resources, in the short term, to ensure an effective and orderly implementation. Most steps in the process of realizing the gains are dependent upon completion of other steps and on other departments’ capacity to implement certain procedures and systems that affect the WRH operation. Effecting the necessary changes to achieve efficiencies and ensure effectiveness is also subject to organizational constraints and timing issues.

2. Administration of the Immunization of School Pupils Act
   This review was intended to provide the following information:
   - Determine whether the Regional Health Unit’s administrative policies and procedures are contributing to the achievement of the program’s goals and objectives. To ensure the program is effective and doing what it is supposed to do.
   - To determine whether the resources being used to achieve the program’s objectives are appropriate to the outcomes achieved. To ensure the program is providing good value for the resources invested.
   - To determine whether policies and procedures are in place to assist in complying with the Immunization of School Pupils Act and other applicable legislation and to ensure continued compliance. To ensure that risks associated with the program are managed effectively.

   Based on information obtained during the course of the review we were able to determine that the Region has the organizational and administrative structures in place to effectively manage the enforcement and record-keeping functions required by the Immunization of School Pupils Act. Some improvements in process and use of technology that would increase the efficient operation of the program were identified during the review.
Proposed Activities for 2008:
A three-year audit cycle was developed in consultation with the Internal Audit Resource Group (IARG) and the Corporate Leadership Team. IARG, composed of a Commissioner and 6 Directors provides suggestions and support to the Internal Audit function. The audit plan, based on a three year cycle is developed and amended as changing circumstances require, on an annual basis. Activities outlined in the plan for 2008 will include most or all of the following:

- Program review of administration and business processes related to purchase of goods and services - Purchasing and Materials Management
- Program review of capital program delivery – Design and Construction
- Audit of purchase card use
- Audit of petty cash
- Audit of compliance with licensing requirements for positions requiring staff person to hold a certificate granted by a third party licensing organization
- Initiation of internal control education project.

In addition to these items ad hoc consultation and review assignments will be accommodated as the need arises and as circumstances change. A new internal audit position was approved in the current year’s budget. Together with associated hiring activities, a job description, office space, training, and orientation activities will be prepared and delivered. Further work on planning, performance, and implementation of program reviews will require consultation with other departments and will comprise a significant commitment on the part of Internal Audit.

CORPORATE STRATEGIC PLAN:
Focus Area 6: Ensure all Regional programs and services are responsive, efficient, effective and accountable to the public.

FINANCIAL IMPLICATIONS: Nil.

OTHER DEPARTMENT CONSULTATIONS/CONCURRENCE: Nil.

ATTACHMENTS: Nil

PREPARED BY: Joyce Matthison, Internal Auditor

APPROVED BY: Mike Murray, Chief Administrative Officer
MEMORANDUM

To: Members of the Audit Committee
From: Mike Grivicic, Council/Committee Support Specialist
       Kris Fletcher, Director of Council and Administrative Services/Regional Clerk
Subject: Proposed processes for the Audit Committee
File No: C05-40

The following are the processes that were reviewed and refined at the Audit Committee of May 8, 2008.

General

Open Meetings: In accordance with the Municipal Act all meetings will be conducted in open. Closed meeting provisions will apply to the Audit Committee no differently than any other meeting of members of Council.

Agenda: The agenda top sheet and attachments for the Audit Committee shall be circulated to all members of Council. Audit Committee members and Councillors will obtain their package by regular courier service. Email shall be used when materials are last minute or the normal courier run is not available. Closed meeting agendas will be circulated to all members of Council. Closed reports will generally be distributed at the meeting.

Staff will be required to have all information for the agenda by 9:00 am the Thursday ahead of the meeting; this information will generally be delivered on the Friday.

Internet Posting: Open agendas and related attachments will be posted to the website. Audit Committee meetings will appear on the schedule of meetings.

Minutes: The Clerk is required to keep minutes of both the open and closed sessions. Council Services staff will be assigned to perform this function for the Committee.

All minutes shall be forwarded directly to Administration and Finance Committee (A&F) following an Audit Committee meeting.

Recommendations from the Committee: The Audit Committee does not have the authority to take independent action on items it has reviewed. Generally recommendations from the committee will be forwarded to the Administration and Finance Committee for approval and than forwarded to Council for ratification. It is recognized however that there may be occasions where timing is an issue and under these circumstances recommendations may be forwarded directly to Council.
Internal and External Audit Processes

Below are two example processes staff has mapped out.

External Audit Process

1. The external auditor gives a presentation at the Audit Committee meeting outlining the finding of the external audit. Financial statements will be released at this meeting and staff will provide an overview.
2. Audit Committee makes a motion to go into a closed session, if required
   • Within closed session, the Committee will may questions related to the Management Letter provided in the agenda package
3. Proceeding to Administration & Finance Committee meeting (A&F):
   • Financial statements and the minutes of the open portion of the Audit Committee meeting would proceed to the subsequent A&F meeting
   • Elements of the closed portion of the Audit Committee meeting would proceed to closed A&F at the discretion of the Chair or the Committee
4. Proceeding from A&F to Regional Council with recommendations

Diagram 1: Process for external audit
Internal Audit and Program Review Process

1. The internal auditor gives a presentation at the Audit Committee meeting outlining highlights of their audit report
   - Audit Committee makes a motion to go into a closed session to address closed material, if required
2. Proceeding to A&F
   - Full open reports including information reports and/or reports with recommendations from the internal auditor
   - Elements of the closed portion of the Audit Committee meeting would proceed to closed A&F at the discretion of the Chair or Committee
3. Proceeding to Regional Council meeting: Recommendations to Council

Diagram 2: Process for internal audit

Conclusion
The processes proposed allow the Audit Committee to conduct activities set out in the Terms of Reference, dealing with external audits and internal auditing and other internal reporting in an open, transparent and efficient manner.
<table>
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<tr>
<th>Meeting date</th>
<th>Requestor</th>
<th>Request</th>
<th>Assigned Department</th>
<th>Anticipated Response Date</th>
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<tr>
<td>15-May-07</td>
<td>Committee</td>
<td>Reconsideration of proposed green roof strategy</td>
<td>CR-Facilities</td>
<td>Spring 2008</td>
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<tr>
<td>14-Aug-07</td>
<td>Committee</td>
<td>Discussion on optional integrity provisions/officers including budgetary and organizational implications.</td>
<td>Council</td>
<td>TBA</td>
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<tr>
<td>06-Nov-07</td>
<td>K. Denouden</td>
<td>Creation of the environment fund and the environmental sustainability framework directed to Ad Hoc Environmental Advisory Committee with a report to come back to the Administration and Finance Committee</td>
<td>CR-Facilities</td>
<td>Spring 2008</td>
</tr>
<tr>
<td>04-Dec-07</td>
<td>Committee</td>
<td>Approach Bell Canada to conduct an economic analysis into the establishment of the local calling area and report back to Committee.</td>
<td>CR-Information Technology</td>
<td>TBA</td>
</tr>
<tr>
<td>16-Jan-08</td>
<td>S. Strickland</td>
<td>Report on how communication services are delivered in the Regional organization.</td>
<td>CAO- Corporate Communications</td>
<td>TBA</td>
</tr>
<tr>
<td>19-Feb-08</td>
<td>J. Mitchell</td>
<td>Report on expansion of council representation.</td>
<td>CR - Clerk’s Office</td>
<td>Late June 2008</td>
</tr>
</tbody>
</table>
Present were: Chair T. Galloway, J. Brewer, K. Denouden, R. Kelterborn, J. Mitchell, K. Seiling, J. Smola*, B. Strauss, S. Strickland, J. Wideman and C. Zehr*

Members absent: D. Craig, J. Haalboom, B. Halloran, C. Millar, W. Roth.

DECLARATIONS OF PECUNIARY INTEREST UNDER THE MUNICIPAL CONFLICT OF INTEREST ACT

None declared.

REPORTS - Finance

a) F-08-039 2007 Development Charge Transaction Report

Received for Information.

Larry Ryan, Chief Financial Officer, gave an overview of the content of the report and outlined plans for the development charge program into the future.

b) F-08-040 History of Net Supplementary Taxes

Received for Information.

L. Ryan gave an overview of the report, explaining historical trends of surpluses/deficits, describing the difficulty of predicting these taxes and explaining situations where an increased probability of a deficit exists.

The Committee asked if the $800,000 figure is a fixed amount taken from supplementary taxes, and L. Ryan responded that the figure is the budgeted net revenue. The Committee asked where that figure is derived from, and it was stated that the figure is determined directly by councillors and not staff.

The Committee noted that on average, the budgeted annual net revenue has been exceeded by $4.2 million over the past ten years, and underscored the importance of more accurately budgeting for these amounts while noting the prudence required for budgeting for supplementary taxes.

The Committee suggested that staff work on net supplementary taxes to be included in the pro-forma budget, and noted that portions of the surplus are put forward to the following year to reduce debentures for projects.

The Committee asked how shortfalls are covered in years where write-offs exceed supplemental taxes, and L. Ryan explained that in those years other accounts act to offset the shortfall.
The Committee noted that years with a shortfall are also recession years, which may be a concern in the near future. The Committee suggested that it would be prudent to assign maximum and minimum values to the budgeted net supplementary taxes to mitigate such a situation. L. Ryan pointed out that two areas are automatically funded from this surplus: $500,000 for the roads program and $600,000 for the next year’s budget, and these amounts are predetermined by policy.

The Committee directed staff to provide a report in the pre-budget period with possible policies or practices for calculating the amount budgeted for supplementary taxes.

*C. Zehr left the meeting at 11:42 a.m.

REPORTS – Corporate Resources

c) CR-CLK-08-004/CR-RS-08-026 Fluoridation – City of Waterloo Request to Hold a Plebiscite – Supplementary Information to Report CR-CLK-08-002/PH-08-015, dated April 22, 2008

Gary Sosnoski, Commissioner of Corporate Resources, explained to the Committee that a plebiscite would need to be conducted under the *Municipal Elections Act*, and that staff recommends that Council impose a simple majority on the results by resolution which would have the effect of binding the results of the plebiscite voluntarily.

The Committee asked if the resolution was passed and turnout were less than 50%, would the results be binding on the next Council. G. Sosnoski explained that the results would be binding on this Council but not necessarily on any future Council. Debra Arnold, Director of Legal Services/Regional Solicitor, further explained that the Region has unfettered authority to deal with fluoridation, and that Regional Council may pass a motion to voluntarily bind itself but that this would differ from the binding nature of a plebiscite as described in the *Municipal Elections Act*.

The Committee noted that the people outside of Waterloo are also implicated in a plebiscite, and asked whether discussions have occurred with officials from those areas. Kris Fletcher, Director of Council and Administrative Services/Regional Clerk responded that preliminary discussions have taken place with officials in those areas and that one of the next steps explained in the report would be to pinpoint which electors should receive a ballot.

The Committee received a handout from Public Health regarding the Government of Canada response to a petition to stop community water fluoridation. A copy is appended to the original minutes.

Delegations

i. Robert J. Fleming

Mr. Fleming gave a presentation to the Committee outlining the interconnected nature of the Region’s water system, describing how backflows and changes in direction of water flow can affect the delivery of fluoridated water to areas that have not sought to obtain it. He noted that these dynamics pose issues in determining who is to vote in a plebiscite. He outlined issues in using the *Municipal Elections Act* and how the Region’s motion would interact with the Act. The presentation is appended to the original minutes.
The Committee asked if the delegation has made this approach to the City of Waterloo since our last meeting, and Mr. Fleming responded that he has to some councillors at the City of Waterloo.

*J. Smola left the meeting at 11:50 a.m.

*C. Zehr returned to the meeting at 11:50 a.m.

ii. Carole Clinch

Ms. Clinch noted that during the original plebiscites the citizens of Waterloo were told that natural fluoride would be used to fluoridate water. She provided a quote from the head of the Drinking Water Section of Health Canada that referenda are held in heated environments, not conducive to reasoned debate.

The Committee asked whether the delegation wanted the Region to have a plebiscite, and she responded no and that the referendum would not be legally binding but that the decision should be made by the council of the City of Waterloo. The Committee asked if the delegation is prepared to go back to City of Waterloo's council to argue that the City should request the Region stop fluoridating, and she replied affirmatively.

iii. Louisette Lanteigne

Ms. Lanteigne explained that the council in the City of Waterloo may not fully appreciate the legislative complexities and rely on staff recommendations. She does not support a plebiscite, and that there is no need to go through the expense and effort of a plebiscite. She explained that other municipalities could play a role in assisting the city in considering the fluoridation issue, and that there is a degree of inequity in having a plebiscite because of the costly nature of a campaign.

The Committee asked whether the delegation would be prepared to go back to City of Waterloo to reconsider their decision to ask for a plebiscite, and she responded affirmatively while explaining that she would prefer other municipalities would be consulted to provide expert testimony to facilitate the City’s decision on fluoridation.

The Committee stated the fact that the Committee has formal communication and resolutions from the City of Waterloo, and that the Committee is dealing with those issues in the absence of any other communication from the City. The Committee noted that the City is used to having this debate and that if the Committee decides to send the issue back to Waterloo’s council then the issue becomes a political football; if the Region gets another request from Waterloo at a future date then the Region can deal with it appropriately at that time.

The Committee stated that the Regional Council table should not be the forum for a fluoridation debate, and that this should be made clear in advance of any campaign. The Committee noted that the recommendation in the report binds this Council to implement the results of a plebiscite, which does not detail facilitating the debate.

K. Fletcher reminded the Committee a report will be delivered in early 2010 on the plebiscite question, which would mean that the Region cannot divest itself of any role in the debate, but that this does not entail being involved in the fluoridation campaign.

The Committee discussed issues around the ability of the Regional Council and Committees to separate itself from a future fluoridation debate, including procedural issues. Mike Murray, Chief
Administrative Officer, noted that this is clearly a decision for the Region to make, not the
decision of the City of Waterloo. The Committee underscored the desirability of continuing with
the historical precedent of holding plebiscites. The Committee suggested that the report be
circulated to the City of Waterloo, given all the additional information that has been raised.

MOVED by S. Strickland
SECONDED by J. Mitchell

THAT The Regional Municipality of Waterloo direct the Clerk to commence the process in early
2010 for a plebiscite pursuant to the Municipal Elections Act concerning the continued
fluoridation of the water for the City of Waterloo, portions of Woolwich Township including
Elmira and St. Jacob’s, Country Squire Road, and the Farmer’s Market area, and small portions
of Kitchener and Wilmot, to coincide with the next municipal election (November, 2010);

AND THAT The Regional Municipality of Waterloo, if a plebiscite is held, implement the simple
majority result on the answer to the plebiscite question, based on the cumulative votes cast in
the City of Waterloo, portions of Woolwich Township including Elmira and St. Jacob’s, Country
Squire Road, and the Farmer’s Market area, and small portions of Kitchener and Wilmot, in the
event that the double majority formula to create a binding result under the Municipal Elections
Act is not achieved;

AND THAT The Regional Municipality of Waterloo supports the formulation of an Ontario
Fluoridation Office as endorsed by the Council of Ontario Medical Officers of Health, and that a
copy of this report be forwarded to the Chief Medical Officer of Health for Ontario.

CARRIED

d) CR-CLK-08-003 Information Management and Archives Update 2007

Received for Information.

G. Sosnoski explained that this report addresses a request from the Committee, and gave an
overview of the content of the report.

The Committee thanked the Archivist and other contributors to the report, and took note of the
areas where the archives have saved the Region money and have contributed to the business
of the Region.

e) CR-FM-08-012 Update – Corporate Environmental Sustainability
Strategy

Received for Information.

David Roewade, Environmental Sustainability Planner, made a presentation to the Committee
explaining the Corporate Environmental Sustainability Strategy and the highlights of the report.
A copy of the presentation is appended to the original minutes.

The Committee noted the value of taking an inventory of the Region’s environmental initiatives,
and the valuable role that such an inventory plays in moving forward with new activity. The
Committee stated that the Region deserves credit for its environmental stewardship, especially
in water conservation, and that the report highlights that the environment permeates the whole
of the Region’s activities.
f) CR-FM-08-014 Tenant Changes at 150 Main Street – Update

Received for Information.

Ken Noonan, Director of Facilities, explained that negotiations were ongoing with Conestoga College, and that this has yielded changes from the report on tenant changes previously provided to this Committee. This report updates details on the tenancy arrangements.

g) CR-RS-08-023 Safer Communities – 1,000 Officers Partnership Programme (Ministry of Community Safety and Correctional Services) – Renewal Agreement

MOVED by J. Wideman
SECONDED by J. Mitchell

That the Regional Municipality of Waterloo enter into a renewal agreement for the “Safer Communities – 1,000 Officers Partnership Programme” with her Majesty the Queen by the Minister of Community Safety and Correctional Services effective April 1 2008 to March 31, 2010 as described in Report CR-RS-08-023; and

That the Region’s Chief Financial Officer be delegated authority to sign all reports to the Ministry on behalf of the Regional Municipality of Waterloo as required under such Agreement.

CARRIED

REPORT FROM AUDIT COMMITTEE

a) Recommendations of the Audit Committee

MOVED BY S. Strickland
SECONDED BY B. Strauss

THAT the Regional Municipality of Waterloo approve the Audit Committee Terms of Reference, dated May 8, 2008.

CARRIED

MOVED BY S. Strickland
SECONDED BY B. Strauss

THAT the Administration and Finance Committee approve the minutes of the Audit Committee dated May 8, 2008.

CARRIED

b) Information Reports

• CA-08-001 2007 Internal Audit Report

Received for information.
The Committee noted the efficacy of the administration of the immunization program, as detailed in the internal auditor’s report.

- Memorandum to Members of the Audit Committee re: Proposed procedures for the Audit Committee

Received for Information.

INFORMATION/CORRESPONDENCE

None.

OTHER BUSINESS

a) Council Enquiries and Requests for Information Tracking List

Received for information.

b) The Committee heard an update on the memo from the Planning and Works Committee re: Greyhound service changes. C. Zehr has had discussions with Greyhound and clarified that:

- The company seeks to increase convenience for park and ride customers;
- The intent is not to reduce bus service from downtown;
- Fewer platforms might be used;
- Ticketing is an issue going forward and the company wants to encourage internet ticketing;
- The stop in Cambridge will be kept in use
- Freight service would be eliminated from downtown;
- Sales agent at university would remain.

NEXT MEETING – June 10, 2008

MOTION TO GO INTO CLOSED SESSION

MOVED by B. Strauss
SECONDED by K. Denouden

THAT a closed Committee meeting be held on Tuesday, May 13, 2008 following Administration and Finance Committee meeting, in accordance with Section 239 of the Municipal Act, 2001, for the purposes of considering the following subject matters:

a) Proposed or pending acquisition of land in the City of Kitchener

CARRIED

COMMITTEE CHAIR, T. Galloway

COMMITTEE CLERK, M. Grivicic
Presentation Outline

1. Background: Goals of Developing the Region's Environmental Sustainability Strategy
2. Brief Overview of Initiatives Inventory Process
3. Highlights of Initiatives Report
4. Next Steps in Sustainability Strategy Development

Strategic Focus Area #1

“Environmental Sustainability: Protect and Enhance the Environment”

Objectives
1.1 Develop an integrated approach to environmental sustainability
1.2 Improve air quality in Waterloo Region
1.3 Effectively use and manage energy resources
1.4 Reduce the amount of waste requiring landfill
1.5 Protect the quality and quantity of our water resources

Goals of the Environmental Sustainability Strategy

• Develop overarching environmental framework and principles
• Identify gaps in our current environmental efforts
• Develop processes to prioritize and integrate environmental initiatives
• Develop assessment tools to evaluate impact of Regional operations on the environment
• Improve environmental reporting to the community
Report Highlights

Snapshot of Regional "Firsts"
- Regional Official Policies Plan (ROPP)
- Blue Box program
- Water Resource Protection Strategy
- Bike racks on all buses.
- Gold LEED® building
- ISO 14001 certification for Landfill
- Composting facility, house hold hazardous waste ……

Inventory Process

- 25 Managers organized into six subcommittees for Strategy Development process
- Oct. – Dec. 2007: collected information on Regional environmental initiatives with additional assistance from program staff
- Jan. – Mar. 2008: report writing/revision process with additional input from Policy Advisory Committee (10 Directors) and CLT
- April 2008 – presented to Ad Hoc EAC

Report Highlights (cont'd)

- Renewable electricity generation
  - methane from the Waterloo Landfill
  - power 4,000 homes
  - 165 million m3 of Greenhouse gases (GHG) averted (1999)
- LED conversion of traffic lights
  - 70% reduction in electricity consumption
  - 1250 tonnes of GHG emissions reduced annually
- WRH Lighting
  - 39,000 incandescent lights replaced
- 20 kW photovoltaic system installed
Report Highlights (cont'd)

• Water consumption per person
  – Lowest of any major municipality in Canada
  – 335 litres per day
  – Programs – toilet replacement, rain barrels, watering restrictions, etc
• Water effluent – capital program launched to improve
• Road salt
  – 35% reduction (2000 to 2006)
  – Private contractor program launched
• 43% of waste diverted in 2006 (79,000 tonnes)
  – Green bin pilot launched and expanded
• 19,300 square metres of closed landfill re-vegetated

Report Highlights (cont'd)

• Regional fleet vehicles
  – Cleaner fuels & advanced pollution control equipment
  – 1288 tonnes of GHG and pollutants annually
• GRT ridership increased by 52% since 1999
• On/off-road bike lanes - 94 kilometers established since year 2001 (272 km total)
• Environmentally Sensitive Landscapes doubled in last three years to 17,000 acres
• RGMS approved - 70 projects (urban design, walkability, local food, human services, etc)

Overview of Timelines

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<th>Phase 2: Internal and External Research</th>
<th>Phase 3: Strategy/Policy Development</th>
<th>Phase 4: Implementation Plan</th>
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</table>

Phase 2:
- Inventory
- BMP
- Gap Analysis
- Review Local Municipal plans

Phase 3:
- Framework options
- Principles
- Evaluation criteria

Phase 4:
- Goals/targets
- Report categories
- Resources
- Funding
- Collaboration opportunities

Questions/Comments?