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# **2004 ANNUAL REPORT**

## **GREEN PLAN STEERING COMMITTEE**

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March 2005

Prepared for  
GREEN PLAN STEERING COMMITTEE

by  
Heather Kepran - GPSC Chair

## 2004 Accomplishments

### REPORTING & COMMUNICATION:

- Recognizing the age of the Green Plan (1994), GPSC identified the need to review the implementation of the plan's goals and objectives. In conjunction with the Planning & Building Department and Guelph Environmental Leadership (GEL), GPSC secured funding for a Ten Year Review of the Green Plan to report to PETC and Council in 2005. Further, this funding will allow for the creation of topic-specific action plans to guide and monitor the implementation of the Green Plan going forward (process will begin in 2005).

### COORDINATION & IMPLEMENTATION:

- GPSC finalized its Report and Recommendation on Ecological Functions in the City of Guelph. This included recommendations on how the city should address the issue of ecological functions. As well, an inventory was created of over 45 environmental reports and assessments that have been prepared for the city and over 60 other studies and surveys of the aquatic, terrestrial (flora and fauna), and geological resources of the city. These were compiled into two documents that have already proven useful to city staff:
  - *Compilation of Environmental and Ecological Data for the City of Guelph* (8 pp)
  - *Compilation of Environmental Resources at Guelph City Hall* (139 pp)
- The committee developed recommendations for energy efficiency in Guelph buildings through the Leadership in Environment and Energy Efficient Design (LEED) program.

### PROMOTION & VISIBILITY:

- Glynis Logue represented the committee at the Federation of Canadian Municipalities Sustainable Communities Conference in February.
- The committee collaborated with City staff to hold the "5th Annual Clean Air Festival" on June 2<sup>nd</sup> to promote the need for community action and co-operation to reduce the emission of greenhouse gases.
- Glynis Logue was recognized as Canada's first "Local Hero" by Earth Day Canada.
- The committee updated access to GPSC documents via the City website.

### ONGOING SUPPORT:

- Committee members participated in public involvement processes, including the Guelph Trail Master Plan. Glynis Logue sits on the Technical Committee for the Natural Heritage Strategy and Laura Murr was nominated as GPSC's representative on the Water Supply Master Plan.
- GPSC comments were instrumental in the City's decision to purchase the property at 211 Kortright Road as open space for the protection of ecological functions in the Hanlon Creek Watershed.

## Problems, Concerns and Resolutions

- *Concern*—It was identified that there is a need for improved communication and coordination of GPSC initiatives with City staff, the Planning, Environment & Transportation Committee, and Council.  
*Resolution*—GPSC members met with City staff on several topics in 2004, and issued invitations to GPSC meetings to new staff in the planning department. GPSC also updated and expanded the Green Plan materials available on the city's website.
- *Concern*—There was a concern regarding the role of GPSC in assisting the Planning, Environment & Transportation Committee and Council on issues of environmental sustainability.  
*Resolution*—GPSC reviewed the need for possible modifications to the committee's mandate. The committee determined that it would be best to await the outcome of the Green Plan Ten Year Review before finalizing and proceeding with recommending changes to their mandate.

## Record of Meetings

### NUMBER OF MEETINGS:

- GPSC called a total of 11 meetings during calendar year 2004.

### ATTENDANCE OF MEMBERS:

- Glynis Logue attended 11 meetings (chair for 8 meetings)
- Heather Kepran attended 9 meetings (chair for 3 meetings)
- Stephen Rodd attended 9 meetings
- Jay Cranstone attended 2 meetings (resigned in May)
- Lyle McNair attended 1 meeting (concluded term in January)
- Puni Piyasena attended 6 meetings
- Sandy Middleton attended 9 meetings
- Raminder Kanetkar attended 9 meetings (appointed in February)
- Cathy Cobey attended 7 meetings (appointed in February)
- Laura Murr attended 7 meetings (appointed in February)
- Leslie Work attended 3 meetings (appointed in February / resigned in July)
- James Etienne, Jennifer Turnbull and Martin Lavictoire from the Environment & Transportation Group shared the role of staff liaison to the committee.

Please refer to the attached Attendance Roster for further information.

### ATTENDANCE OF GUEST SPEAKERS:

- Jim Riddell attended the November meeting to introduce himself to the committee as the new director of the Planning & Building Department.

# **2005 Work Plan Highlights**

## **1) REPORTING & COMMUNICATION: Ten Year Review of the Green Plan**

**Goal** – Assess progress and update the Green Plan’s goals and objectives (Ten Year Review).

**Goal** – Develop a topic-specific action plan template to guide and monitor the implementation of the Green Plan’s goals and objectives over the next five years.

**Actions (to be undertaken by GEL/GPSC):**

- Survey City departments and community groups to see what has been done in relation to Green Plan goals, objectives and suggested actions.
- Publish and distribute results of Ten Year Review in 2005.
- Prepare an action plan for one topic area in the Green Plan (e.g., energy, transportation). Action plans for remaining topics will be developed in subsequent years.

## **2) COORDINATION & IMPLEMENTATION: Environmental Benchmarking**

**Goal** – Advise on the development and management of an environmental benchmarking process.

**Actions:**

- Begin work on the State of Sustainability/State of the Environment Report (3rd Edition).

## **3) COORDINATION & IMPLEMENTATION: Natural Heritage Strategy**

**Goal** – Collect data and assess the natural heritage inventory of the city.

**Actions:**

- Glynis Logue representing GPSC on Steering Committee.
- Committee to provide further input as requested.

## **4) COORDINATION & IMPLEMENTATION: Water Supply Master Plan**

**Goal** – Identify strategies to supply water to Guelph for the next 50 years.

**Actions:**

- Laura Murr representing GPSC on Public Advisory Committee.
- Prepare Position Paper on Principles for the City’s Water Supply Master Plan.

## **5) ONGOING SUPPORT: City of Guelph Long-Range Plans**

**Goal** – Respond to other City of Guelph Long-Range Plans

**Actions:**

- Provide comments on long-range plans and studies related to the Green Plan as required and/or requested (e.g., Guelph’s Strategic Plan, Guelph-Wellington Transportation Study, City of Guelph Naturalization Plan, etc.).



# **City of Guelph**

## **State of Sustainability Report**

*(2nd Edition, March 2003)*

### **EXECUTIVE SUMMARY**

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The Green Plan, prepared in 1992—1994, was the first step in a strategic planning process to move the City of Guelph toward its vision of environmental sustainability in harmony with our economic and social development. In adopting the Green Plan, city council specified that a State of Sustainability Report (SOSR) be prepared every three years.

The report was to provide a comprehensive examination of the state of the natural systems and environmental features within Guelph. The scope of the SOSR covers not only the natural environment, the main focus of the Green Plan, but also the economic and social aspects of the community. The first SOSR was produced in 1998. This updated work builds on the original, covering the period 1998 to 2001.

This report looks at ten sustainability focus areas:

- Land Use and Development
- Water Conservation
- Energy Conservation
- Integrated Transportation
- Waste and Resource Management
- Outdoor Air Quality
- Employment Trends
- Stable Healthy Families
- Community Capacity Building
- Community Cohesion

In each area, success is measured using a series of indicators. Indicators are key measurements that provide a quick snapshot of the wellbeing of each focus area. More than one measurement may be used as part of each indicator.

In the report, each indicator is discussed in detail, with specific long-term goals and short-term targets defined. Three alternative judgements are used to describe the state of each indicator measure. These judgements are:

- The Guelph community is making progress in relation to the goal and target;
- The Guelph community needs improvement in its performance;
- It is hard to say whether we are moving in a favourable direction.

In some cases new data were not available and thus a judgement could not be made. To increase the reliability of the judgements, an attempt was made to have data providers review the prepared commentaries. This was possible for all of the environmental indicators, however, for many of the social indicators no review was possible.

The following chart summarizes the findings of this report.

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## Guelph 2001 State of Sustainability Report Summary of Findings

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### ***INDICATORS OF ENVIRONMENTAL SUSTAINABILITY***

#### **Land Use and Development**

Open Space and Natural Corridors  
—Hard to say  
Ecological Sensitivity and Habitat Protection  
—Hard to say  
Land Management  
—Making progress  
Balanced Development  
—Needs improvement

#### **Integrated Transportation**

Automobile Travel  
—Needs improvement  
Transit Ridership  
—Making progress

#### **Water Conservation**

Ground Water Quality  
—Making progress  
Water Consumption  
—Making progress  
Water Supply Reserve Capacity  
—Hard to say  
Impact on the Speed River  
—Making progress  
Surface Water Quality  
—Needs improvement

#### **Energy Conservation**

Energy Consumption  
—Needs Improvement

#### **Waste and Resource Management**

Waste Reduction and Hazardous Waste  
—Needs improvement

#### **Outdoor Air Quality**

Ozone and Greenhouse Gas Emissions  
—Hard to say

### ***INDICATORS OF SOCIAL AND ECONOMIC SUSTAINABILITY***

#### **Employment Trends**

Labour Force with Employment  
—Hard to say  
Income Level  
—Needs improvement  
Post-secondary Qualifications  
—Making progress

#### **Stable Healthy Families**

Children in Care and Domestic Disputes  
—Needs improvement  
Public Safety and Security  
—Making progress  
Personal Health  
—No new data

#### **Community Capacity Building**

Recreation Facilities  
—No new data  
Environmental Education  
—No new data  
Arts and Heritage-Cultural Development  
—No new data

#### **Community Cohesion**

Local Government Participation  
—Hard to say  
Community Concern  
—Hard to say

It is difficult to arrive at a single, all-inclusive result from the SOSR as the indicators reflect such disparate aspects of Guelph's environmental, economic and social wellbeing. However, the individual commentaries provided herein do show trends over time and future stresses in certain areas. The data in this report may also provide significant baseline data for the City to develop a more detailed benchmarking program in the immediate future.

In general, Guelph seems to be making positive strides in five of the ten broad focus areas. Seven of the 25 indicators are improving over time. In other cases, it is very hard to say if Guelph is succeeding in its efforts. Finally, in some cases, it is clear that Guelph is not moving forward toward sustainability.

Looking ahead, the way in which the SOSR is produced needs to be re-examined to make it a more effective and efficient tool for community stakeholders. The following are brief recommendations for future editions of the SOSR. The GPSC realizes that some of this work may become part of a future Smart Guelph benchmarking process.

- ***Update the Reporting System***—create a common, transparent system to collect data on locally relevant indicators.
- ***Review Indicator Meaningfulness***—revisit current and suggested new indicators, ensuring the indicators selected are meaningful in the local context.
- ***Develop a Coordinated Approach***—work with data providers (city staff and other stakeholders) to collect data, analyse, and comment on the indicators selected.
- ***Focus on Environmental Indicators***—other organizations are conducting indicators work on social and economic sustainability; the GPSC should focus on the environmental indicators, and coordinate with these groups to prepare a citywide SOSR.
- ***Promote and Distribute the SOSR (2nd ed.)***—the results of the SOSR should be distributed to the community, and feedback from concerned citizens should be sought.

REVISED: November 2, 1998

**CITY OF GUELPH**

**STATE OF SUSTAINABILITY REPORT**

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There are several fundamental aspects of sustainability. It is a moral choice and a value for policy making. It must be considered with a very long time perspective and horizon. There must be community involvement in making the decisions by which we affect each other and future generations. We must relate social and economic improvement to natural systems. We must recognize the geographic, economic, social and political contexts within which we live.

*Based on S. Dovers in Development Journal of SID, 1989: 2/3, pp.33-36*

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Submitted by the Green Plan Steering Committee  
City of Guelph  
November 2, 1998



# TABLE OF CONTENTS

Page No.

## ***PART A: ABOUT SUSTAINABILITY***

|    |  |   |
|----|--|---|
| 1. | Introduction.....                                      | 4 |
| 2. | Purpose.....   | 4 |
| 3. | A Vision of Sustainability.....                        | 5 |
| 4. | Concept of an “Indicator” and its Interpretation ..... | 6 |
| 5. | Organization of the Report .....                       | 7 |
| 6. | Data Sources.....                                      | 8 |
| 7. | Acknowledgements.....                                  | 8 |

## ***PART B: INDICATORS OF NATURAL ENVIRONMENTAL SUSTAINABILITY***

### **LAND USE AND DEVELOPMENT**

|    |   |    |
|----|---|----|
| 1. | Protection of Natural Habitat and Ecological Sensitivity..... | 9  |
| 2. | Bird Species in Christmas Counts .....                        | 12 |
| 3. | Land management: Communities in Bloom Competition .....       | 14 |
| 4. | Financial Resources of Local Government.....                  | 15 |

### **TRANSPORTATION**

|    |                        |    |
|----|------------------------|----|
| 5. | Automobile Travel..... | 17 |
|----|------------------------|----|

### **WATER**

|    |                                     |    |
|----|-------------------------------------|----|
| 6. | Ground Water Quality.....           | 19 |
| 7. | Water Consumption .....             | 21 |
| 8. | Water Supply Reserve Capacity ..... | 23 |
| 9. | Impact on the Speed River.....      | 25 |

### **ENERGY**

|     |                                     |    |
|-----|-------------------------------------|----|
| 10. | Energy Consumption - Reduction..... | 30 |
|-----|-------------------------------------|----|

### **WASTE MANAGEMENT AND RESOURCE USE**

|     |   |    |
|-----|---|----|
| 11. | Waste Reduction and Hazardous Waste ..... | 34 |
|-----|---|----|

### **AIR QUALITY**

|     |                                   |    |
|-----|-----------------------------------|----|
| 12. | Hours of Ozone Over Standard..... | 36 |
|-----|-----------------------------------|----|

## TABLE OF CONTENTS Cont'd

### Page No.

### ***PART C: INDICATORS OF SOCIAL AND ECONOMIC SUSTAINABILITY***

|   |   |    |
|---|---|----|
| 13.   | Employment and Unemployment .....                     | 38 |
| 14.   | Income Level and Low Income .....                     | 39 |
| 15.   | Income Level - Median Income.....                     | 41 |
| 16.   | Labour Force with Post-Secondary Qualifications ..... | 43 |
| 17.   | Stable Healthy Families .....                         | 44 |
| 18.   | Recreation .....                                      | 46 |
| 19.   | Environmental Education .....                         | 48 |
| 20.   | Local Government Participation.....                   | 50 |
| 21.   | Community Cohesion .....                              | 51 |
| 22.   | Personal Health .....                                 | 53 |
| 23.   | Fine Arts - Cultural Development .....                | 55 |
| 24.   | Public Safety .....                                   | 57 |
| Appendix 1: Additional Data: Population and age distribution..... |   | 59 |
| Appendix 2: Report of Discussion Group, 9 July 1998.....          |   | 60 |

# STATE OF SUSTAINABILITY IN GUELPH

## NATURAL ENVIRONMENT PLUS SOCIAL AND ECONOMIC ASPECTS

### PART A: ABOUT SUSTAINABILITY

#### 1. INTRODUCTION:

This is the first of a planned series of State of Sustainability Reports (SOSR), which Guelph City Council has stipulated should be prepared every three years. The Green Plan proposed that a SOSR be prepared every three years, so that the community would have a number of baseline measurements in the years ahead to gauge significant aspects of the natural environment and the social and economic dimensions of the community. The information provided by the SOSR is a starting point for informed decision making. The triennial period was chosen because it is a short enough period to provide evidence of a trend in any given dimension, and it is not so frequent as to be an unduly heavy load to gather and update data.

#### 2. PURPOSE:

The Green Plan (page 79) describes the proposed SOSR as follows:

*There should be a comprehensive examination of the general state of the natural systems and environmental features within Guelph every three years. It is recommended that Guelph broaden the technique [of a "State of the Environment" report] by integrating the examination of the state of the natural environment together with an analysis of its relationship to the economic and social sustainability of Guelph as a whole.*

*Quantitative indicators should be used to provide objective measurements that can be compared to base-line data, to chart improvements or deterioration of natural systems. Qualitative indicators and personal perceptions should also be used to determine how conditions have been enhanced or degraded. The (Green Plan Steering Committee) should ensure that the State of Sustainability reports are prepared with the involvement of the community.*

This report is only part of the process of setting and providing input to public policies. The data presented for each of the indicators is intended as an early warning signal of the possible need for remedial or preventive action. A change in an indicator is meaningful but it does need to be examined to understand why there has been a change and how to view that change. This report does not provide analysis of all possible explanations or interpretations of each indicator.



### 3. A VISION OF SUSTAINABILITY:

The concept of sustainability gets mixed up with the term “sustainable development”. The concept of sustainable development encompasses an enormous range of matters, including, for example, globalization, management of economies, Third World economic growth and protection of rare animals and plants and is therefore beyond the scope of the Guelph Green Plan. Protection of rare plants and animals is, of course, within the scope of the Green Plan. The goal of the Green Plan was to deal with issues of “environmental sustainability” within and near the city of Guelph.

The Green Plan states that the Plan “is the first step in a strategic planning process that will move us toward our vision of environmental sustainability in harmony with our economic and social development. (page 3)” On the broader scale of the World Commission on Environment and Development, the Brundtland Report says: “*Humanity has the ability to make development sustainable - to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs.*” (Our Common Future, p. 8) This clearly puts the focus on the ethics of being fair to future generations.

Sustainability of a system means that the system has the health and resilience to continue into the indefinite future without diminishing or developing a fatal illness. A frequent view of environmental sustainability equates it with maintaining our natural capital (living off the interest rather than spending the capital). If Guelph becomes more sustainable, Guelphites far in the future will have the resources, such as clean air and water and natural spaces, to fulfil their needs.

It is clear that the word “development” is not identical to the word “growth”, and that sustainability does not mean that everything is getting bigger and bigger. To develop a skill is to improve one’s skill. Development does mean that it is getting better, if the development is positive rather than negative. The distinction between development of a community and simply growing bigger is vital.

A excessively narrow view of sustainability would interpret it as meaning that no resource could be used if nature did not replenish the resource itself: coal, for example. Fortunately, a unit of a non-renewable resource, e.g., a tonne of coal, can be replaced by renewable resources with no loss of our well-being if our new technologies and changes in tastes provide the needed increase in substitutes or efficiency in coal use. Human abilities and wants are not fixed forever at their current levels. The greater effort we make to develop and adopt sustainable alternatives, the longer those resources will last and the easier the transition will be if we find that we have no choice.

The idea of living sustainably, at the personal level, may mean some lifestyle choices in small or large ways. It is a choice one can make, in one’s relation to community goals. A ten minute walk may become more enjoyable than a two-minute drive, because it provides an opportunity to breathe fresh air, stretch limbs, recharge energy, and become part of the outside world or interact with other people. Installing a more efficient shower head takes a small effort, saves money after a short time and doesn’t affect the water pressure. Growing

an organic garden instead of a lawn can provide opportunities to be creative, produce healthy food, feel close to the earth and enjoy the company of others or oneself. In addition to the immediate benefits to the individual, everyone benefits from a more sustainable community.

All of the discussions of sustainability recognize that any single area is interdependent with other geographic areas. Guelph exchanges many things with other parts of Canada and the globe. Guelph companies and scholars exchange new technologies and knowledge with other regions and we obtain resource products and services from them through trade and natural systems flows such as the movement of air and water.

The scope of the SOSR covers not only the natural environmental systems, which are the focus of the Green Plan, but also the economic and social aspects of the community, since they are important policy considerations for City Council and the community. The natural environment may be affected by economic and social changes in the community, and the opposite is also true. The concept that was adopted was to select those aspects of the community which reflect the health or state of development of the social and economic systems. Social and economic sustainability are affected by the health and well-being of these aspects of the community.

#### **4. CONCEPT OF AN “INDICATOR” AND ITS INTERPRETATION:**

An indicator in this report is viewed as a signal that something may need closer scrutiny. It is neither a final conclusion nor an accusation.

A change in any indicator or measure cannot be considered to be conclusive, by itself. If we see that an indicator has changed it is only an indication of probable change, not proof of its direction or size. Additional information might be needed to show what has really happened. The measures used in this report simply indicate that something has happened, and certainly does not provide any explanation of the cause of what has happened. In complex systems it is important to look at trends, which is why the Green Plan calls for a SOSR every three years, and it is why we have obtained data from past years wherever possible. A measure of the direction and rate of change cannot provide an explanation of why the change took place nor can it provide a solution if it is considered a problem. The SOSR is designed to provide a warning to the policy and administration system that closer study may be needed.

The measurements in this report indicate the health of the community. They cannot provide a complete portrait of the community in every respect; to do so would require an encyclopedic kind of publication, which would not be useful to the community in general. An encyclopedic approach would have required vast expenditures of money and time, and may not be accessible to the community, only to experts. Therefore a short two-page snapshot of the entire report will be provided for general distribution.

## **5. ORGANIZATION OF THE REPORT:**

Several workshops were held in late 1996 and early 1997 to select appropriate indicators from among the hundreds which have been compiled. The workshops included representatives from City staff, volunteers and other agencies. The workshops developed a matrix of issue areas and aspects of each area, which provides the structure of this report, section by section. The outcomes of the workshops have been used here as closely as possible, depending on the availability of information. In a few cases we cannot obtain data for Ontario as a whole for comparison with Guelph, or we have not been able to obtain data for several dates in past years for comparison. In these cases it may not be clear whether the indicators can be interpreted to show progress or that we need improvement.

The report is organized in three main parts. Part A is devoted to explanations of the important ideas used in the report. The two main parts, B and C, deal in turn with (a) the natural environmental systems in and around Guelph, and (b) the social and economic aspects of the community of Guelph. The indicators of the natural systems are grouped largely under the five issue areas which were used to design the Green Plan itself.

For each indicator a judgment is reported as to how well the recent experience can be viewed. There are three alternative judgments which could be levied:

- (a) Is Guelph as a community making progress with respect to the measure relative to the long-term goal and the short-term target?
- (b) Do the data show that we need to make improvements in our performance?
- (c) Is it hard to tell if we are moving in a favourable direction?

These three options could be represented by a symbolic face which appears definitely happy, somewhat unhappy or neutral. These reactions are based on whether the data show that we are moving in the direction of the long-term goal and the short-term target, or it is hard to tell whether the direction is positive or negative and seems to be more or less stable.

There are twelve indicators for each of the two main parts. In a few cases there are two or more measurements which comprise the indicator, which are discussed together. The discussion of each indicator has eight sub-headings:

- (i) Description of the indicator
- (ii) Guiding principle which is represented by the indicator
- (iii) Long-term goal for the system
- (iv) Short-term target
- (v) Pressures and impacts on the system
- (vi) Limitations of the indicator
- (vii) How to improve performance

## **How are we doing?**

### **6. DATA SOURCES:**

The indicators are measures which have been derived from authoritative sources, published if at all possible. The sources are almost all official, and thus are likely to be comparable to the same figure provided for another community or another period of time. A source is shown for each measure.

### **7. ACKNOWLEDGEMENTS:**

The Green Plan Steering Committee wishes to express its thanks to many people who have helped to produce this report, too numerous to mention by name individually. Members of the community, City staff, and Grand River Conservation Authority (GRCA) helped in the workshops which arrived at the final list of indicators. Data were provided by a number of agencies, including among others, Wellington County Board of Education, Wellington County Roman Catholic Separate School Board, United Way Community Services of Guelph and Wellington, Family and Children's Services of Guelph and Wellington County, Guelph Fire Department, Guelph Police Department, Guelph Works Department, Guelph Planning and Business Development Department, GRCA, Wellington-Dufferin-Guelph Health Unit, Union Gas, Guelph Hydro and Ministry of the Solicitor General.

## **PART B: INDICATORS OF NATURAL ENVIRONMENTAL SUSTAINABILITY**

### **LAND USE AND DEVELOPMENT**

#### **1. Protection of Natural Habitat and Ecological Sensitivity:**

##### **(i) Description of the indicator**

The table below is composed of data of two kinds.

- (a) “Natural Open Space” has been inventoried from the Official Plan (Schedule #2). It is comprised of provincially significant wetlands and other natural heritage features including significant woodlots, locally significant wetlands, natural corridors (from River Systems Study), linkages and their enhancements related to the Hanlon Creek Watershed Plan, and floodways.
- (b) “Park Open Space and Facilities” data are derived from the 1997 Recreation, Parks and Culture Strategic Plan inventory of park facilities, plus miscellaneous open spaces such as golf courses, cemeteries and Grand River Conservation Authority land.

It is clear from the definitions that these two kinds of land comprise a very broad range of kinds of land. Some are entirely designed for natural protection while others are entirely for active human use with no habitat values. Some of the areas are entirely used for buildings. The data are therefore very difficult to interpret in terms of natural and ecological significance. Human activities are important for health and mental well-being, in their own right. The data cannot be interpreted as evidence of increased or decreased protection for nature. However, it is clear from the processes used in the updating of the Recreation and Parks strategic plan and from analysis by planners in the recently annexed lands that the City has given a higher priority to identifying significant natural areas for increased protection than formerly was the case.

These two kinds of lands have been presented in hectares by ward, and per ward in hectares per 1000 population and hectares as per cent of the ward area. Wards 2 and 6 include relatively large areas of predominantly undeveloped land recently annexed to the City. The annexed lands have been studied to identify significant natural lands which are intended to be protected from most future intensive development.

| <b>NATURAL OPEN SPACE BY WARD 1997</b> |                 |                           |                  |
|--|-----------------|---------------------------|------------------|
| <b>WARD</b>                            | <b>HECTARES</b> | <b>HA/1000 POPULATION</b> | <b>% OF LAND</b> |
| 1                                      | 158             | 0.0113                    | 10.5             |
| 2                                      | 74              | 0.0049                    | 7.1              |
| 2 ANNEXED                              | 137*            | *                         |                  |
| 3                                      | 28              | 0.0018                    | 3.4              |
| 4                                      | 76              | 0.0047                    | 6                |
| 5                                      | 77              | 0.0051                    | 7.5              |
| 6                                      | 380             | 0.0239                    | 10.6             |
| 6 ANNEXED                              | 303*            | *                         |                  |
| <b>TOTALS</b>                          | <b>1,233</b>    | <b>0.0138</b>             | <b>13.3</b>      |

\* Wards 2 and 6 include substantial areas of land annexed to the City which include areas of natural heritage which are intended to be protected from development.

| <b>PARK OPEN SPACE AND FACILITIES BY WARD</b> |                 |                           |                  |
|---|-----------------|---------------------------|------------------|
| <b>WARD</b>                                   | <b>HECTARES</b> | <b>HA/1000 POPULATION</b> | <b>% OF LAND</b> |
| 1   | 90              | 0.0064                    | 6                |
| 2   | 168             | 0.0111                    | 16               |
| 3   | 73              | 0.0046                    | 9                |
| 4   | 35              | 0.0022                    | 2.7              |
| 5   | 170             | 0.0112                    | 16.5             |
| 6   | 437             | 0.0275                    | 12.2             |
| <b>TOTALS</b>                                 | <b>973</b>      | <b>0.0106</b>             | <b>10.5</b>      |

The population total is 92,164 excluding members of the University student population who do not live here the entire year (8,000).

Source: Dept. of Planning and Business Development, and Dept. of Recreation, Parks and Culture

## **HARD TO SAY**

This indicator is an attempt to mark the City's progress toward protecting all significant areas of natural habitat and ecological sensitivity. Protection of such areas can be done in several ways, including outright purchase and management by the public authority, or protection by special regulations which control changes to the natural systems in one or more specific areas which are in private ownership and use. The kinds of official action to protect such areas could include designation as a public park, purchase as a conservation area, and/or identification in one of the zoning by-law categories such as floodway, wetland, woodlot, or natural heritage feature.

- (ii) **Guiding principle which is represented by the indicator:**  
The principle here is that the community interest in protecting natural systems of all kinds should be protected while also recognizing the owner's interest in the land. In cases where there is a conflict between these different interests, there must be a balance through some governmental action on behalf of the community such as outright purchase, a fairly and visibly negotiated management programme or public regulations.
- (iii) **Long-term goal for the system:**  
The long term goal is that all areas which can produce environmental benefits should be protected so as to maximize these benefits to the community, keeping in mind the foreseeable growth of the community and its needs.
- (iv) **Short-term target:**  
The target for the near-future is to meet all professional and legal standards for the provision of parklands of all kinds.
- (v) **Pressures and impacts on the system:**  
The continued growth and development of the economic and social systems of Guelph will increasingly, through the real estate markets, place higher values on real estate. The growth of population also puts a higher intangible value on the benefits provided to the community by lands which provide aesthetic beauty, peacefulness, wildlife habitat, education, spiritual comforts, recreation, natural restoration of air and water, and many other benefits which are not bought and sold in any marketplace.
- (vi) **Limitations of the indicator:**  
The task here is difficult because our past history does not give us an estimate of how much land was ecologically sensitive before it was developed. We cannot know what has been lost, but we now are making such analyses before land is used for construction. There are limits to how much environmental analysis is done in advance of development, and limits to protecting every plant or animal because of the trade-offs which occur in the developmental processes. The issue is complicated by the wide range of human and natural values which are encompassed within these categories of land, and by long-standing definitions which do not conform necessarily to current priorities. In addition, our ecological inventories are incomplete.
- (vii) **How to improve the performance**  
Create a comprehensive inventory of all natural features which are important ecologically or are valued by residents for their scenic, recreational, environmental or cultural significance. Accomplish a process for protecting these land areas under some part of the Planning Act, or through Nature Trusts, or by negotiation with one or more private landowners with a management programme which balances the public and private interests in the benefits obtainable from the land.

## **How are we doing?**

The Recreation and Parks Strategic Plan has just recently been studied intensively to update its provisions to meet the current and foreseeable needs of Guelph. The current situation in Guelph, of course, shows the effects of over one hundred years of growth and development, much of which occurred long before there was public or private sensitivity to the loss of living systems and their ecological interactions with people and our future. It appears that the current planning system is anticipating the need to protect ecosystems in order to protect our quality of life for future generations in the areas which might be developed in the future. The new Strategic Plan of Rec. and Parks Dept. shows that the current open space policies of the Official Plan (OP) are not satisfied and the situation must be remedied somehow. The City officials involved are planning to develop new standards which will be appropriate for Guelph's own values and our geographic and social conditions. This will refine the existing definitions and concepts of different kinds of open space and natural areas.

## **2. BIRD SPECIES IN CHRISTMAS COUNTS:**

### **(i) Description of the indicator**

Each year, during a given three-day period at Christmas time, bird watchers count the number of bird species which they have seen within 15 kilometres of the centre of Guelph, and report those observations to the Guelph Field Naturalists. These annual figures have been averaged in periods of five years. The Christmas bird count started in 1966, and the first several periods represent counts from fewer bird watchers than became active in more recent periods. These numbers are the best available to us of the actual number of species measured by expert observers on a regular basis in or near Guelph.

| <b>AVERAGE NUMBER OF SPECIES</b> |    |
|----------------------------------|----|
| 1966-1970                        | 43 |
| 1971-1975                        | 48 |
| 1976-1980                        | 49 |
| 1981-1985                        | 53 |
| 1986-1990                        | 57 |
| 1996-1997                        | 58 |

Source: Guelph Field Naturalists, and Mike Cadman, Canadian Wildlife Service

## **HARD TO SAY**

### **(ii) Guiding principle which is represented by the indicator:**



The principle which is represented here is that a larger number of bird species probably represents improvements in the habitat available for bird populations. It also represents an increase in the number of active field naturalists, who have become acquainted with bird species and their identification. Such increased levels of skill and knowledge shows increased appreciation of our natural environmental systems.

**(iii) Long-term goal for the system:**

To increase our knowledge of and improve the health of our natural systems in and near Guelph.

**(iv) Short-term target:**

Increased numbers of bird species.

**(v) Pressures and impacts on the system:**

If the number of bird species were to show continued declines there would be strong evidence that there had been deterioration of bird habitats, and/or decreased levels of interest in natural phenomena. The available data do not show any actual decline but they are not sufficiently reliable to interpret in a positive way.

**(vi) Limitations of the indicator:**

The main limitation of this indicator is the time of year when the bird count is taken, in early winter when the lowest possible number of bird species is present. To have a better indicator of the kinds of birds nesting and breeding in the City we would require a count of the important species nesting, breeding and raising young here. It would be important to identify especially those species which are considered by the experts to be significant to the county, in terms of rarity or ecological importance. The bird count is subject to variations in the number of persons participating in the counts. The detailed data for individual species reported, with the numbers of each kind of bird, may be more informative to bird experts.

**(vii) How to improve the performance:**

Increase naturalization of gardens in the city, plant more trees and shrubs, reduce habitat loss, reduce pesticides, as well as improve education in schools about natural areas and habitat need for wildlife species.

**How are we doing?**

The data show two distinct periods of activity in bird counting, rather than a strong 30-year period of rising bird populations and diversity. The situation, more realistically, is that the trend has been constant over the past 15 years since 1981. The data do not indicate an observable increase or decrease over the latest 12 years in this basic winter bird species count.

### 3. LAND MANAGEMENT: COMMUNITIES IN BLOOM COMPETITION

Each year a community may compete against other communities of the same size range in terms of their performance on a standard set of criteria related to the quality of the protection and enhancement of the natural and heritage environment in the community. In 1996 Guelph competed against several other Ontario communities and was awarded first prize.

In 1997 Guelph was allowed to compete at the national level, since it had won provincially in 1996. Guelph was awarded four “blooms” out of the maximum of five, and thus placed second with two other communities, at that level. In 1998 Guelph will again compete nationally.

Source: Dept. of Recreation, Parks and Culture

(i) **Description of the indicator:**

Each year communities who apply and prepare the necessary documents are visited by two independent judges who spend two days studying the community and interviewing residents and City staff.

There are eight criteria, as follows:

#### 1997 RESULTS

|                             |            |
|-----------------------------|------------|
| Tidiness Effort .....       | 73%        |
| Environmental Effort .....  | 83%        |
| Community Involvement ..... | 4%         |
| Heritage.....               | 82%        |
| Urban Forestry .....        | 76%        |
| Landscaped Areas .....      | 75%        |
| Floral Arrangements .....   | 77%        |
| Turf Areas .....            | 73%        |
| <b>TOTAL.....</b>           | <b>77%</b> |

#### MAKING PROGRESS

Each criterion consists of several components, each of which is graded separately and also graded for efforts by some or all of the three levels of responsibility: (a) public, (b) commercial, (c) private.

(ii) **Guiding principle which is represented by the indicator:**

The criteria for this competition are quite broad and diverse. As well as beautification the programme criteria go far beyond beauty to include

”environmental effort, community involvement and heritage protection”, which make the programme relevant to total community sustainability. The criteria can be considered to comprise a “quality of life” or community pride index from the viewpoint of physical appearance of our built-up areas and our landscape in general, from aesthetic and heritage viewpoints. The principle is that all our residents should share a community which is attractive and pleasing in some total sense.

**(iii) Long term goal for the system:**

The goal is to continue to achieve high levels of attractiveness in our entire city system of land, buildings, heritage and public facilities so as to instill pride in our shared environments.

**(iv) Short-term target:**

To continue the excellent efforts and continue to improve our participation in this national and international programme of civic accomplishment in our natural and built environments.

**(v) Pressures and impacts on the system:**

If the criteria for Communities in Bloom are well satisfied, local feelings of living in a good community will increase. It requires efforts by many people in all neighbourhoods, and also by the City staff and leaders, to provide the efforts and expenditures within a sound framework of planning and development goals and policies to create strong grades on the entire set of criteria.

**(vi) Limitations of the indicator:**

This indicator is excellent for this purpose. It is based on defined criteria. It is measured by independent experts in the subject matter. It is quite easily understood, although the eight criteria are broad and more than one might expect in a competition which is about being “in bloom”. There is a relevant and comparable measurement for comparison with other communities.

**(vii) How to improve performance:**

It seems invidious and presumptuous to suggest in this report how an already excellent performance can be enhanced. Continue the efforts and widen the participation and contributions from an even larger fraction of our population.

**How are we doing?**

Enough said already!!! Wonderful performance for Guelph’s community!

#### **4. FINANCIAL RESOURCES OF LOCAL GOVERNMENT**

Proportions between property assessment for taxation in residential land compared to industrial, and commercial land.

|        |                                    | 1992 | 1996 |
|--------|------------------------------------|------|------|
| Guelph | Residential Assessment             | 63%  | 64%  |
|        | Commercial & Industrial Assessment | 37%  | 36%  |

Source: Dept. of Planning and Business Development

## NEEDS IMPROVEMENT

**(i) Description of the indicator:**

This indicator measures the relative size of the property assessment for taxation in the residential category and the assessment of industrial and commercial properties. The indicator reflects the customary parameters used to judge whether the local economic structure is appropriate to provide municipal services.

**(ii) Guiding principle which is represented by the indicator:**

The principle involved here is one which has been recognized by financial experts for decades: that a municipal government in Ontario should have a balance between the values of properties in residential buildings compared to the assessment in the industrial and commercial sector. The appropriate balance has been considered to be 60:40, which has been found to generate revenues appropriate to meet the needs of all sectors of the local economy for infrastructure and services provided by the municipality. In all assessment matters, fairness and equity are essential.

**(iii) Long-term goal for the system:**

The long-term goal would be to achieve a better balance in our assessments.

**(iv) Short-term target:**

A short-term tactic could be to balance residential developments by a number of means available to the City, such as modifying the increase in sewage treatment allocation to residential and phasing the approval of subdivision applications and building permits. In addition, the City might accelerate the availability of serviced industrial land in large blocks which are currently in limited supply.

**(v) Pressures and impacts on the system:**

Guelph's economy and land development have been under pressure for some years to accommodate increased residential construction without the industrial and commercial growth which would balance the assessment ratio with residential development. There is great inertia in this ratio, because it is difficult to get enough change in development to change the ratio noticeably.

**(vi) Limitations of the indicator:**

This indicator and the standard it reflects is very fundamental, but it may need to be changed because of the recently altered relationships in responsibilities and funding with the Province.

**(vii) How to improve the performance:**

The City might retard residential developments by a number of means available to it, such as delaying the increase in sewage treatment capacity, for example, or by slowing the approval of subdivision applications for other reasons. Also the City could increase efforts to get more employment opportunities by growth of existing organizations or attracting new establishments; alternatively it might increase industrial lands.

### **How are we doing?**

The current situation is reducing the ability of the City of Guelph to provide for some residential areas their needed facilities and services, and it also makes it more difficult to fund the infrastructure needed to service land for industry and hence to attract more employers. The current situation appears to be very difficult, partly because of the greatly increased financial burdens on all municipal government by changes in service responsibilities and in altered financial responsibilities.

## **TRANSPORTATION**

### **5. AUTOMOBILE TRAVEL**

- (a) proportion of trips made by auto, transit or other (walking, bicycle)

| <b>Modal Split – Comparison of Guelph to Greater Toronto Area (GTA)</b> |     |
|---|-----|
| <b>Guelph – 1996</b>  |     |
| Auto  | 85% |
| Transit   | 5%  |
| Other   | 10% |

In a survey by the Joint Program in Transportation at University of Toronto, the mode splits were compared among four counties in the Greater Toronto Area (GTA) and four urban communities (Guelph, Orangeville, Barrie and Peterborough). The data for the counties showed almost no trips by transit and higher proportions of trips by car. Of the four cities, Guelph and Peterborough were approximately the same. There is a clear difference between urban and rural areas.

- (b) Relationship between size of labour force residing in Guelph and the number of jobs inside Guelph - e.g proportion of residents of Guelph who work outside Wellington County.

1991 Census labour force residing in Guelph and employed outside Wellington County (presumably commuting) equals 8,590, which is 18.65 per cent of the employed labour force.

## **Needs Improvement**

**(i) Description of the indicator:**

There are two measures here for this indicator of reliance of automobiles for travel. Both measures are related to transportation and energy consumption arising from land use aspects. The first measure is the proportion of trips made by Guelph residents by automobile and by other modes as a percentage of all journeys. This indicator reflects the distance which separates most residents from their workplace or other destinations. The other indicator is the reliance of Guelph residents on commuting to places of employment outside of Wellington County.

**(ii) Guiding principle which is represented by the indicator:**

The guiding principle reflected here, in terms of environmental sustainability and in quality of life, is that there should be less dependence on the automobile for the most frequent journeys. The reliance on automobile travel is a measure of the dispersal of our homes, places of work and other frequent destinations. Our reliance also, of course, reflects our average affluence and choices of lifestyle as well as the busy and complex lives we live. Our continental climate and winters are also important factors. Automobile travel is a major source of environmental burdens including damaging emission pollutants, greenhouse gases and some new road construction in natural areas.

**(iii) Long-term goal for the system:**

The ultimate goal might be to reduce significantly the use of automobiles for frequent journeys, and increase the proportion of jobs held by our residents which are located within our own city.

**(iv) Short-term target:**

Continue to stimulate the development of land in ways which reduce the distance to shop, to work, and to school, so that children and adults can travel more by walking, bicycle and public transit. This will require new forms of land use, more encouragement of innovative design in neighbourhoods, and improved education of residents on the advantages of more intensive forms of land development and community living. Increase the attraction to potential employers in Guelph and discourage the construction of subdivisions which are oriented to commuter travel to larger urban centres.

**(v) Pressures and impacts on the system:**

The more travel that is by automobile, the larger is the consumption of gasoline and creation of polluting emissions, and also the higher will be the amount of land and financial resources used to construct and maintain roadways, thus reducing natural

land areas and diverting funds from other kinds of activity by government and/or by individual families. Recent popularity of vans and sport utility vehicles have added to gasoline consumption; the popularity of gasoline lawn mowers and other garden tools has added their share of pollution. On the other hand, increased bicycle use has helped to decrease gasoline consumption.

**(vi) Limitations of the indicator:**

The data serve very well to provide these measurements. The data on modal splits could be refined and provided in more detail so as to understand the phenomena more clearly.

**(vii) How to improve the performance**

The situation is hopeful only in the sense that so much can be done and so little has been done. The only way to move is upward in the use of alternative travel modes; this would be helped by the use of alternative development standards and new forms of community development. Guelph is well along in the process of drafting Alternative Development Standards, with the pilot Pine Ridge Project on Alternative Residential Land Use. Governments could be lobbied to reduce the incentives to auto travel.

**How are we doing?**

The recent trend has been discouraging in this respect, with apparently continued increase in the attraction of Guelph to persons who are employed in other urban centres. Guelph also has an unusually high proportion of residents who commute to their jobs, very often as far as Toronto and its suburbs. Guelph for some years has represented urban sprawl. Also, potential reduction in transit subsidization by the Province may put pressure on the City to increase transit fares, a move which would further decrease ridership.

## **WATER**

### **6. GROUND WATER QUALITY**

Guelph draws its water from 23 wells through the City and nearby, and from the Arkell Spring Grounds. We have selected, with staff advice, three of those sources, to represent the general quality of Guelph's ground water resources. These are the Park Well in the north-east part of the city, the University Well on Edinburgh Road, and Well 6 in the Arkell Spring Grounds on the east side of the City.

| <b>Date</b>                  | <b>Chloride mg/l</b> | <b>Nitrate mg/l</b> | <b>E. Coli (colonies/100ml)</b> |
|------------------------------|----------------------|---------------------|---------------------------------|
| <b>Provincial Objectives</b> | <b>250</b>           | <b>10</b>           | <b>0</b>                        |
| <b>#6 Well Arkell</b>        |                      |                     |                                 |
| Sept-91                      | 39.5                 | 2.34                | 0                               |

|        |      |      |   |
|--------|------|------|---|
| Aug-92 | 36.7 | 1.68 | 0 |
| Aug-93 | 32.8 | 1.17 | 0 |
| Sep-94 | 34.2 | 2.05 | 0 |
| Apr-97 | 44.0 | 2.37 | 0 |

#### **Park Wells**

|         |       |      |   |
|---------|-------|------|---|
| Sept-91 | 136.0 | 1.34 | 0 |
| Apr-92  | 132.0 | 0.77 | 0 |
| Apr-93  | 154.0 | 1.72 | 0 |
| Apr-94  | 143.0 | 0.92 | 0 |
| Apr-97  | 167.0 | 2.92 | 0 |

#### **University Well**

|        |       |      |   |
|--------|-------|------|---|
| May-91 | 82.5  | 0.46 | 0 |
| May-92 | 85.1  | 0.35 | 0 |
| May-93 | 84.1  | 1.36 | 0 |
| May-94 | 103.0 | 0.43 | 0 |
| Apr-97 | 119.0 | 0.56 | 0 |

Source: Water Division, Works Department

### **HARD TO SAY**

**(i) Description of the indicator:**

Three measures were selected to demonstrate important aspects of the quality of the ground water in the aquifers on which Guelph depends for its water supply. These measures reflect several things. First, they show the general quality of the water as it is drawn into the Guelph water system prior to treatment and distribution to residents. Second, they illustrate over time the possible effects Guelph may have had over recent years on the water resources as well as the effects other communities may be having on our water supply. The three measures which are used here are (a) degree of concentration of chloride compounds in the water, (b) concentration of nitrates in the water, and (c) presence of E. Coliform bacteria.

**(ii) Guiding principle which is represented by the indicator:**

The appropriate principle is that Guelph residents should not be exposed to unsafe water supplies. Also there is a related principle that Guelph activities should not have damaging effects on the water resource which we share with other communities.

**(iii) Long-term goal for the system:**

Maintain our water resource in a condition of high quality, with no health dangers to our residents and to all water users.



(iv) **Short-term target:**

Continue careful watch over the water supplies, and ensure that all health regulations and guidelines are met.

(v) **Pressures and impacts on the system:**

It has been recognized for a long time that our modern highway maintenance activities add considerable amounts of salt (sodium chloride) to the surface waters, and that much of it may go into the aquifers. Agriculture is considered the major source of nitrate compounds, particularly from animal wastes and from fertilizers. There are health effects for humans from both of these kinds of compounds. E. Coli bacteria are of immediate concern because they can cause serious health effects on humans, very quickly.

(vi) **Limitations of the indicator:**

These data are limited since they are for selected dates which are not necessarily representative of all seasons of the year. The complex system of water wells in Guelph makes it difficult to represent accurately the condition of the entire aquifer quality in a few small tables.

(vii) **How to improve the performance:**

The issue which appears in these data is the level of chloride in the ground water. It is not immediately clear whether these levels shown are dangerous to health and equipment. It is clear that high levels of salt ingestion increase the risk of coronary artery disease and for some individuals with high blood pressure this higher risk may be serious, perhaps unknowingly. There needs to be a careful epidemiological study of the risks presented to individuals by the trend in chloride levels, the medical costs, potential substitutes for salt on winter streets, and alternative ways to reduce this salt exposure.

**How are we doing?**

It appears that regulations and guidelines have been met in recent years. The comparison of these three wells illustrates close interactions between land uses on the surface and the quality of the aquifers. The level of chlorides is much higher in the water coming from the Park Wells which is almost in the centre of the older geographic parts of the City. We can only assume that these figures reflect the cumulative effects of high levels of street traffic and winter road maintenance. All three sources have a rising trend in the chloride levels.

## **7. WATER CONSUMPTION**

Average daily total consumption in all uses and pumpage from all sources per person (litres/person/day)

|      | CONSUMPTION | PUMPAGE |
|------|-------------|---------|
| 1991 | 464.2       | 502.5   |
| 1992 | 418.1       | 454.0   |
| 1993 | 400.1       | 448.6   |
| 1994 | 412.6       | 482.6   |
| 1995 | 432.5       | 474.7   |
| 1996 | 420.2       | 485.4   |

Source: Works Dept.

## HARD TO SAY

**(i) Description of the indicator:**

The data on water use from our water resources are presented in two forms. The pumpage of treated water is the total amount put into water mains, while the consumption figures measure the amount of water which is put through meters into homes, business and institutions. The difference is accounted for by leaks from water mains and by non-metered water use, such as certain operations of the City's municipal operations or perhaps some customers without meters. Neighbourhood outdoor winter skating rinks are not metered, for example.

**(ii) Guiding principle which is represented by the indicator:**

The entire population and economy of Guelph depends on the ground water under our community. There is a limit to how much water can be pumped out of the ground. If we exceed that capacity we must bring water from other sources, such as underground aquifers further away from Guelph or pipelines from one of the Great Lakes. Drawing such water to serve us incurs considerable financial and environmental costs, and increases competition for the limited Southern Ontario water resources. Southern Ontario is already considered by hydrologists to be deficient in water resources in relation to the increasing demands for water. The principle is that a natural resource should be used with economy and minimum environmental damage.

**(iii) Long-term goal for the system**

The goal should be for Guelph to stay within the sustainable ability of our aquifers to supply high quality water.

**(iv) Short-term target:**

In the short term we should reduce wastage of water, and to reduce the per capita rates of consumption, by a variety of means of conservation and water management.

**(v) Pressures and impacts on the system:**

There is continuing pressure from increasing population and economic growth in and around Guelph. There is increasing draw upon the limited groundwater resource by ourselves and other communities in southern Ontario. Increased use of the aquifers will increase the danger of shortages and of increased levels of contamination of the aquifers from surface sources.

**(vi) Limitations of the indicator:**

The data would need more detailed study to determine if there is progress. There are water users which draw water from the aquifers with their own equipment, such as the University for part of its water supply, and the total picture needs to be included.

**(vii) How to improve the performance:**

Water conservation by all users, including differential prices of water according to value of the water to the user so as to reduce “frivolous” use. This would raise the price of water above the money costs of supplying the water, and would provide incentives to conserve water.

**How are we doing?**

Recent data show no apparent trend in per capita use of water. The data are hard to interpret for any noted trend because of the variations from year to year depending on levels of economic activity and on weather variations for gardening and other seasonal uses. At this time the conclusion should be that it is hard to say whether we are improving our water management or making progress.

## **8. WATER SUPPLY RESERVE CAPACITY**

The City of Guelph currently operates wells in and near the city, plus the Arkell Spring Grounds, at an aggregate perennial yield of 61,800 cubic metres per day and a rated capacity of 99,500 cubic metres per day. The Ministry of the Environment requires that the City calculate the uncommitted reserve capacity using a specific formula. The purpose of this requirement is to ensure that this community plan ahead to provide sufficient water supply to meet our needs. The City has calculated that the uncommitted reserve capacity is 13,720 cubic metres per day, which meets the Ministry’s guidelines for anticipated growth for the next few years.

Source: Works Department

## **HARD TO SAY**

(i) **Description of the indicator:**

The Ministry of Environment requires that the City estimate the uncommitted reserve capacity to draw water from our existing water resources. The existing estimate of capacity must be set against the foreseeable or planned increases of population and economic activity. The known reserve capacity is able to handle an intermediate term planning horizon. The City is currently doing an analysis of the entire water supply model.

(ii) **Guiding principle which is represented by the indicator:**

The guiding principle should be that the Guelph community should stay within the capacity of the aquifers available to us. To exceed our aquifer's capacity to provide sustainable flows of water of high quality would mean that we would:

- (a) begin to pump up lower quality water, or
- (b) that we would have to spend major investments in construction to supply water from one of the Great Lakes by pipelines, with accompanying environmental damages, or
- (c) we would compete with other communities for a share of the limited amount of renewable water resources in southern Ontario, which are already known to be at or beyond their capacities.

(iii) **Long-term goal for the system:**

The long term goal should be to keep our water use within the limits of the capacity of the aquifers and their ability to produce high quality and safe water.

(iv) **Short-term target:**

Reduce leakages from the system. Charge every user the value of the water used, including municipal operations, rather than pricing water at only the cost of obtaining and distributing the water.

(v) **Pressures and impacts on the system:**

The main pressure on the system is the continued growth of populations and of economic activity in Guelph and in the rest of Southern Ontario. As part of that pressure there is the factor of the price applied to each unit of water. At very most the Ontario communities charge their water customers only the money costs of building and maintaining the equipment and pipe needed to collect, treat and distribute water. Price has not been used to induce users to conserve their use of water. Studies have shown that water users would be willing to pay higher prices for water because they perceive a high value to them from water. Differential pricing schemes would be economically efficient and would help protect our water resources from being wasted and endangered.

(vi) **Limitations of the indicator:**

The estimation of uncommitted reserve capacity rests on certain assumptions, which may or may not be accurate. The time period is relatively short, and may not take into account the long-term patterns of economic growth which are likely to affect Guelph.

**(vii) How to improve the performance:**

There are many ways in which water users could be induced to conserve water, using incentive pricing, education, requiring water-saving equipment, and re-use of water where it is feasible technically and safely.

**How are we doing?**

Guelph has a demonstrated history and commitment to make safe water of high quality available to its population and economy. Conservation efforts to reduce leakages and to induce conserving behaviour are now part of the policy. It is difficult to see a clear trend in the data, because many factors create variations from year to year and the data cover only a few years. The policy is beginning to change toward conservation as we may have been getting close to our water supply limits.

**9. IMPACT ON THE SPEED RIVER**

The City of Guelph shares the Speed River with natural aquatic systems and with human communities in towns and rural areas below us in the Grand River, and thence in the lower Great Lakes, St. Lawrence River and the Atlantic Ocean. We have an obligation to try to make no harmful impacts on all of those systems which we can affect.

Two indicators are reported here, which are closely related. The first is the quality of the effluent released from the Waste Water Treatment Plant, and the data reported here include several measures. The second is the level of dissolved oxygen in the Speed River downstream from Guelph, as measured by the equipment of the Grand River Conservation Authority at County Road 32. These are reported and discussed separately.

**(a) Waste Water Treatment Plant Effluent Quality**

**(i) Description of the indicator:**

The City of Guelph's impacts on local river systems occurs in a variety of ways although the most direct, and single largest, impact is through the discharge of effluent at the Waste Water Treatment Plant located on the Speed River. Two parameters, from a variety of measurements, have been selected because of their long-lived effects on the aquatic system, specifically through their effects on the oxygen level of the water and the phosphorus stimulation of algae. The TBOD5 is the total five-day carbonaceous biochemical oxygen demand, a measure of the amount of oxygen required to stabilize a waste biologically. The TP is the total phosphorus in the effluent. These are measured in the effluent as it is discharged into the river. The waste water is analysed by the City of Guelph laboratory on-site, with periodic checks by the Ministry of the Environment.

Hourly samples are taken on a twenty-four hour basis and averaged both for the day and the month. The City has set its own objectives for waste water treatment, which are in some respects more stringent than the limits set by the Ministry for non-compliance with the Certificate of Approval of the plant operation. There are different requirements for the warm summer months and for the winter months.

### City of Guelph Waste Water Treatment Plan Effluent Quality

| Year           | 1990-1991 |       | 1993-1994 |        | 1995-1996 |      |
|----------------|-----------|-------|-----------|--------|-----------|------|
| Parameter      | TBOD5     | TP    | TBOD5     | TP     | TBOD5     | TP   |
| Sept.          | 6.7       | (0.7) | n.a.      | (0.77) |           | 0.47 |
| Oct.           | 6.8       | 0.4   | 5.1       | (0.53) |           | 0.40 |
| Nov.           | 11.2      | 0.7   | 5.0       | 0.52   |           | 0.57 |
| Dec.           | 8.0       | 0.6   | 5.7       | 0.72   |           | 0.74 |
| Jan.           | 5.4       | 0.7   | 5.4       | 0.76   |           | 0.64 |
| Feb.           | 6.6       | 0.8   | 13.4      | 0.57   |           | 0.32 |
| Mar.           | 11.1      | 0.8   | 10.9      | 0.55   |           | 0.36 |
| Apr.           | 9.6       | 0.5   | 4.9       | 0.49   |           | 0.18 |
| May            | 7.6       | 0.4   | 4.9       | 0.49   |           | 0.26 |
| June           | 3.4       | 0.3   | 3.7       | (0.53) |           | 0.42 |
| July           | 6.2       | (0.8) | 4.0       | 0.46   |           | 0.33 |
| Aug.           | 4.5       | (0.7) | 4.7       | (0.67) |           | 0.26 |
| Summer Average | 6.4       | 0.5   | 4.5       | 0.56   |           | 0.33 |
| Winter Average | 8.5       | 0.7   | 8.1       | 0.62   |           | 0.53 |

Note: figures in brackets are out-of-compliance levels

### City of Guelph Objectives and Non-Compliance Limits

#### Winter (Nov.1 - Mar.31)      Effluent Objective      Certificate of Approval Non-Compliance Limit

|                  |   |    |
|------------------|---|----|
| BOD5             | 8 | 12 |
| Total Phosphorus | 1 | 1  |

#### Summer (Apr.1- Oct. 31)

|                  |     |     |
|------------------|-----|-----|
| TOD              | 22  | 30  |
| Total Phosphorus | 0.5 | 0.5 |

(Note: TOD is a different test method than for BOD5)

## **MAKING PROGRESS**

**ii) Guiding principle represented by the indicator:**

Guelph should have minimal impacts on the natural and human systems downstream from Guelph in the aquatic system, which we share with so many other organisms and people.

**(iii) Long-term goal:**

The Guelph community should work toward having zero negative effects on those downstream from us.

**(iv) Short-term target:**

Guelph should meet legislated requirements and guidelines at all times and make further improvements whenever possible, where they have been shown to be desirable.

**(v) Pressures and impacts on the system:**

Increasing population and economic growth of Guelph create larger quantities of waste water, which the treatment plant is still large enough to handle. The City is currently studying the need to expand the treatment plant. Increasing complexities of the chemicals of all kinds entering the drains may create a more significant problem, because the system may not be designed to remove or convert all of the new chemicals to non-noxious forms. The aquatic system is subject to changing loads placed on it from the great variety of activities within the watershed.

**(vi) Limitations of the indicators:**

The two measures that have been selected here are only two out of many which could have been used, but these are familiar. The data appear to be of high quality. They are measured in the City laboratory and checked by the Ministry laboratory. There is peer review by Gore and Storrie Ltd. The data can be expected to be fully professional and accurate. There are limits to what effects on the river can be judged from these two measures.

**(vii) How to improve performance:**

Investigate the reasons for occasional exceedance of the limits on phosphorous, and prevent future exceedances. Determine the best way to reduce the oxygen demand of the effluent in periods of very extreme cold weather, which may exceed the City's objective even though within the Ministry limits. Review other kinds of effects that may be happening from new forms of chemicals which existing treatment technologies may not be able to remove.

**How are we doing?**

The results obtained show that good quality effluent was achieved, and that the plant systems are, generally, producing the required treatment results. All of the TBOD5 has been reported (by MOE) as less than the seasonal limits indicating that the carbonaceous BOD5 component of the effluent meets the requirements of the Certificate of Approval.” This quotation from the 1995-1996 annual review by Gore and Storrie is authoritative. Over the past four or five years, we could find only a few warm weather months in which the Total Phosphorus levels were higher than the City’s effluent objective, but were still within the Ministry limit.

**(b) Dissolved Oxygen:**

**(i) Description of the indicator:**

The Grand River Conservation Authority measures on a continuous basis the level of available dissolved oxygen in the water of the Speed River at a monitoring station located at County Road 32. There is a standard of 4 mg per litre which should be maintained for the health of the plants and animals in the river. The level of dissolved oxygen varies greatly with season of the year, the heat of the day, water temperature, time of day and events occurring upstream. There are complex interactions between the plants and animals in the river and the oxygen levels, and between the level of oxygen and human activities along the banks of the river upstream.

The tables below present the measurements for eleven years from 1988 to 1998, for the summer months (May to September inclusive) except for the month of September 1998 for which data are not available at this date. The level of dissolved oxygen is measured automatically hourly. The first table shows that of the 54 months shown the minimum level of available dissolved oxygen at some time during the month fell below the standard of 4 mg/L in 28 of those months, including three months for which missing data prevented an accurate statement of the minimum level(s). The second table shows the number of measurements during each month that fell below the standard, as a percentage of the observations.

The years 1988 and 1998 appear to have been different from other years with the percentages being higher in those two years than in the intervening years. The percentage of below-standard measurements is generally under five per cent from 1989 to 1997. It presumably is a matter of weather patterns that affect the measurements, with 1998, for example being unusually hot and dry with very low precipitation.

***MINIMUM DISSOLVED OXYGEN CONTENT (MG PER LITRE) (DURING THE MONTH***

| Month | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 |
|-------|------|------|------|------|------|------|------|------|------|------|------|
| May   | 5.5  | 6.4  | 6.6  | 5.2  | 2.8  | 7.0  | 6.7  | 7.4  | 7.1  | 7.9  | 3.8  |



|       |     |      |     |     |      |     |     |     |     |      |      |
|-------|-----|------|-----|-----|------|-----|-----|-----|-----|------|------|
| June  | 1.0 | 7.1  | 4.5 | 3.9 | n.a. | 5.6 | 3.8 | 4.2 | 6.2 | n.a. | 1.9  |
| July  | 1.3 | 2.6  | 2.8 | 2.6 | 4.3  | 5.6 | 5.4 | 3.1 | 4.2 | 2.4  | 2.3  |
| Aug.  | 2.3 | 3.3  | 3.1 | 3.3 | 4.9  | 2.7 | 3.4 | 3.1 | 3.6 | 3.2  | 2.7  |
| Sept. | 5.1 | n.a. | 5.3 | 3.8 | 5.5  | 8.1 | 3.3 | 5.5 | 4.8 | 4.2  | ---- |

### ***PERCENTAGE VIOLATION OF STANDARD (<4 MG/L)***

| Month | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 |
|-------|------|------|------|------|------|------|------|------|------|------|------|
| May   | *    | *    | *    | *    | 7.8  | *    | *    | *    | *    | *    | 1.4  |
| June  | 24.6 | *    | *    | 0.1  | n.a. | *    | 0.2  | *    | *    | n.a. | 9.9  |
| July  | 35.5 | 2.3  | 6.0  | 5.4  | *    | *    | *    | 5.5  | *    | 8.3  | 10.1 |
| Aug.  | 14.3 | 1.8  | 1.3  | 2.2  | *    | 4.5  | 0.4  | 1.2  | 0.4  | 4.0  | 11.2 |
| Sept. | *    | n.a. | *    | 1.1  | *    | *    | 6.1  | *    | *    | *    | ---- |

In the table above there are percentage violations calculated only for those months in which the lowest level was below the standard.

## **HARD TO SAY**

### **ii) Guiding principle represented by the indicator:**

The quality of the water in the Speed River should maintain a habitat suitable for healthy growth and production by plants and animals normal in such a stream, which for the Speed River is identified as dissolved oxygen above 4 mg/L, as a key indicator.

### **(iii) Long-term goal:**

To maintain the level of available dissolved oxygen above the existing standard and to enhance water quality in other respects so as to increase the number of species indigenous to our region which can breed successfully in the Speed River.

### **(iv) Short-term target:**

To control human activities in the City of Guelph to reduce the frequency and degree of impacts which affect the levels of available dissolved oxygen.

### **(v) Pressures and impacts on the system:**

Increasing population and economic growth of Guelph affect the number and quantity of wastes treated in the Waste Water Treatment Plan, with potential impacts on oxygen levels, especially in period of hot weather and low precipitation. The capacity of the river to absorb and neutralize the effects of Guelph's wastes is

inadequate from time to time. Guelph may affect the ecosystems in the river in ways not measured by this indicator.

**(vi) Limitations of the indicator:**

The measure of available dissolved oxygen does not include all of the possible interactions which Guelph's community may have with the ecosystems in the river. Oxygen is vital but there are other biological and chemical conditions which we affect the organisms.

**(vii) How to improve performance:**

Investigate the reasons why the level of oxygen falls below the standard from time to time, and take remedial actions to provide sufficient capacity for the river to be protected. The scope of the needed leeway may be relatively large, as shown by the response in 1998 to the very hot and dry weather in this year. One approach would be to increase the performance of the Waste Water Treatment Plant with respect to the level of oxygen in the effluent. Another would be to release more natural water in the river at times of low flow of the river, which might require larger storage capacity in Guelph Lake. A third option would be to find some way to store waste water from all activities in Guelph from times of peak waste flow to periods of lower waste flow, which might involve massive quantities of storage.

**How are we doing?**

The results achieved are not clear and not undeniably positive. The unusual and extreme weather of 1998 shows that the relatively low levels in 1989 to 1997 of violation of the standard for dissolved oxygen cannot be maintained under all weather conditions. This means that the system does not have sufficient safety margin built into the relationships between size of the local community and the constraints of the local eco-system in the Speed River.

## **ENERGY**

### **10. ENERGY CONSUMPTION**

**(i) Description of the indicator:**

The energy indicators and the goals in the Green Plan are:

- a) Residential energy use per capita - 10% reduction by 2001;
- b) Commercial and institutional energy use per square foot - 10% reduction by 2001;

- c) Industrial energy use per unit produced - 8% reduction by 2001.

Data on consumption of energy in the city of Guelph is very difficult to obtain with documented sources for every kind of energy. The best that can be done at this time is to estimate the current levels of consumption of some kinds of energy by some kinds of energy user. This means that it is impossible at this time to determine if Guelph is making any progress toward the Goals set in the Green Plan, and certainly it is not possible to give any accurate estimate of progress toward the short-term targets set in the Green Plan, i.e. reduction in consumption by each major energy user group from 1994 to 2001.

| Year                        | 1991        | 1995       | 1996        |
|-----------------------------|-------------|------------|-------------|
| Population                  | 87,980      |            | 95,821      |
| Number of Households        | 28,089      | *          | 30,833      |
| Residential Electricity kwh | 302,901,951 | *          | 278,843,831 |
| Natural Gas m3              | *           | 56,693,548 | *           |
| Heating Oil litres          |             |            |             |
| Number of Autos             |             |            |             |

| Year                     | 1991        | 1995        | 1996        |
|--------------------------|-------------|-------------|-------------|
| Number of Businesses     | 3,016       | *           | 3,564       |
| Business Electricity kwh | 615,250,412 | *           | 745,362,782 |
| Natural Gas m3           | *           | 144,134,408 | *           |
| Heating Oil              |             |             |             |
| Number of Autos          |             |             |             |

| Year                            | 1991      | 1995 | 1996      |
|---------------------------------|-----------|------|-----------|
| Street Lighting Electricity kwh | 8,581,852 | *    | 7,328,160 |

(\* Data not available at time of printing)

Sources: Guelph Hydro, Union Gas, City of Guelph

## **HARD TO SAY**

The Green Plan provides explicit Goals with respect to reduction of energy consumption by each sector of Guelph's social and economic community. The indicators which have been possible to measure do not fully take into account all uses of all kinds of energy: electricity, oil, natural gas, gasoline, and others. The data provided here are the best that can be obtained at this time.

- (ii) **Guiding principle which is represented by the indicator:**

The principle which is at stake here is that there is increasing scientific evidence that energy consumption has effects on global atmospheric conditions which in the long run are expected to create changes in world climatic conditions. Energy use can produce local pollution such as carbon monoxide, particulate, and other gases based on carbon and nitrogen. All energy carries a financial cost, and also environmental costs such as pollution at various scales ranging from the neighbourhood to the global. The principle is that undesirable effects of energy consumption should be reduced.

In addition to concerns about the effects of the emissions from energy consumption, a longer term measure of sustainability for energy consumption considers the fact that each major source of energy is a limited resource. Coal, oil, natural gas, and even uranium have finite amounts, known or unknown, available to convert into energy. Long term sustainability must involve alternatives to burning the fuels of the Earth for our energy needs.

**(iii) Long-term goal:**

Move toward being a sustainable energy-consuming city.

**(iv) Short-term target:**

Complete the data gathering needed to properly measure our energy consumption in relation to the Green Plan goals.

**(v) Pressures and impacts on the system:**

The indicators consider consumption per capita, i.e., energy used divided by number of people, or by some other denominator. The dominant pressures on the indicators are therefore changes in how much energy is used ( influenced by technology, efficiency, number of energy consuming situations per consumer, behaviour, conservation ), per the denominator.

The denominators are all influenced by growth. Our society's population growth and economic growth increase the total demand for energy, often showing increases in consumption while the per capita consumption is moderating.

There are pressures on the natural systems' ability to process emissions including deforestation, high stress farming techniques which can lead to desertification, acid rain entering the water systems, etc. The natural systems can process only a finite amount of human wastes. Overloading these systems while we are reducing their size is a key issue.

**(vi) Limitations of the indicators:**

Residential energy use is composed of heating energy, electricity for light and appliances, and transportation energy. All attempts to interpolate consumption have been inaccurate, using data from different years and assumptions as to Guelph's proportionate share of National or Provincial fuel figures. Without a significant survey of Guelph households, it is unlikely that the indicator can be derived with any

accuracy. The denominator, population, can be reasonably determined from Census and tax rolls.

Commercial and institutional use is similarly difficult to derive. The square footage in use can be estimated, though it will be subject to vacancy adjustments.

Industrial energy use can probably be derived without too much difficulty if separable from commercial and institutional figures. The denominator, per unit produced, is problematic and not comparable amongst various companies. The dollar value of local trade may be more available and is the ultimate equivalent factor.

Given these difficulties, it may be easier to track changes in usage based on available sources and their relative denominators. For example, to track fuel used for transportation, the number of vehicles registered in the city, personal and commercial, can be used to qualify aggregate gasoline, diesel, propane and natural gas consumption. By considering the number of personal vehicles per capita (household?) and the fuel consumed on average per vehicle, we can discuss the change in consumption per person for car transport.

**(vii) How to improve performance:**

- The following contacts will be made to determine which indicators are achievable:
- Guelph Hydro - sectoral consumption
- Union Gas - sectoral consumption
- Ministry of Transport - vehicle registrations ( engine type, year, personal vs. commercial)
- Fuel Oil companies - sectoral consumption
- City of Guelph - residential and industrial, commercial and institutional statistics.
  
- The basic principles of change processes apply:
- Create awareness of the need to change ( indicators, consequences of not changing)
- Consider alternatives
- Educate those who need to change
- Develop action plans
- Monitor, evaluate and reward what works.

The many parties involved in effecting change do not typically share a common vision of what needs to be done. The development of such a vision, and action plan, could be an activity of the Guelph Round Table on the Environment and the Economy.

In the meantime, the suggestions in the Energy section of the Green Plan are still valid, and should be acted upon by the Green Plan Steering Committee.

### **How are we doing?**

Residential electricity usage per capita, and total residential electricity used, have decreased between 1991 and 1996. This is good considering that the city was growing in that time frame, perhaps indicating the effect of new building code requirements, and retrofits in the older neighbourhoods. The retrofits were no doubt affected by Guelph 2000's programs of education and home visits, whereby over 3000 residences were inspected in a 3 year window.

Similarly, while the number of street lights has increased in the 5 year time frame, the energy used has decreased, a very positive indicator.

Business electricity use is difficult to gauge. On a straight per business division of total usage, there appears to be no significant change. This data begs further breakdown and analysis.

## **WASTE MANAGEMENT AND RESOURCE USE**

### **11. WASTE REDUCTION AND HAZARDOUS WASTE**

- (a) **Per cent of city's waste stream diverted**, as per cent of 1987 waste disposal in landfill, on a per capita basis.

|      |      |
|------|------|
| 1988 | 9.9  |
| 1989 | 19.2 |
| 1990 | 30.9 |
| 1991 | 30.1 |
| 1992 | 35.1 |
| 1993 | 45.6 |
| 1994 | 52.0 |
| 1995 | 62.0 |
| 1996 | 60.6 |
| 1997 | 56.0 |

Source: Works Dept., Waste Management Division

### **MAKING PROGRESS**

- (b) **Hazardous Wastes Disposed at Depot (selected wastes):**

|                        | <b>1995</b> | <b>1996</b> |
|------------------------|-------------|-------------|
| Paints (litres)        | 29,400      | 59,950      |
| Flammables (litres)    | 39,280      | 19,490      |
| Pesticides (litres)    | 2,000       | 2,500       |
| Car batteries (number) | 678         | 823         |
| Motor oil (litres)     | 110,278     | 39,440      |

Source: Works Dept., Waste Management Division

## **MAKING PROGRESS**

**(i) Description of the indicator:**

There are two indicators chosen to portray progress in waste reduction and conserving the resources used in the production of manufactured products. The first indicator measures the extent to which the City and our residents have fulfilled the Province's policy goal that the waste disposed in landfills should be reduced below the amounts disposed in 1987. The second indicator also addresses the same issue, by measuring the amount of hazardous household wastes which formerly would have been primarily disposed in landfills. Long lists of many kinds of hazardous wastes can be listed but for this indicator we have included only the most familiar kinds of waste which have potential to cause serious contamination of ground water or serious dangers to the air in the vicinity of landfills.

**(ii) Guiding principle which is represented by the indicator:**

The principles involved in waste reduction and resource conservation are to reduce the environmental damages caused in the discovery and extraction of materials from our natural resources and to prolong the period of time over which we still will have resources available for economic extraction. There are many environmental issues in natural resource use and in disposal of wastes; therefore, these general principles are important.

**(iii) Long-term goal for the system:**

The long-term goal is ultimately to reduce the amounts of material thrown away in landfills to zero, and to completely eliminate the possibility of hazardous wastes from contaminating air, land and water.

**(iv) Short-term target:**

The short-term target is to continue the successful trend which has been demonstrated by the excellent performance of the wet-dry facility, and to increase the participation in the wet-dry programme by the industrial, commercial and institutional sectors of the local community.

(v) **Pressures and impacts on the system:**

As the economy and population of Guelph, Ontario and Canada continue to expand, there are continuing pressures on the natural resources we enjoy, some of which are fixed by nature. Every tonne of materials extracted from nature, whether renewable resource or non-renewable, can contribute to damage to natural systems. One way of reducing this potential damage is to conserve the resources by recycling. Reduction of waste deposited in landfills can help by reducing environmental damages often caused by landfills.

(vi) **Limitations of the indicator:**

The indicator measures only the actions in the local community. It does not relate to the improved conservation which occurs elsewhere in the world as a result of our local actions.

(vii) **How to improve the performance:**

The use of the wet-dry facility by the industrial, commercial and institutional sectors of the local economy is still relatively small especially among small companies and organizations. Each company faces considerations in the market place such as existing contracts with waste haulers, and relative tipping fees which each waste generator must take into account and which may inhibit some waste reduction and recycling.

**How are we doing?**

Guelph has been demonstrated to be a leader in its waste management programmes. Through a combination of strategic planning, public education and information programmes, excellent community involvement, and willingness to invest for proven social and environmental benefits, the municipal government has built one of the best systems in Canada. The performance appears to be excellent.

## AIR QUALITY

### 12. AIR QUALITY (OUTDOOR)

Indicator - Number of hours of ozone exceedances in Monitoring location in Guelph and Kitchener (over the one-hour objective of 50 parts per billion)

|      | <b>Guelph</b> | <b>Kitchener</b> |
|------|---------------|------------------|
| 1992 | 460           | 300              |
| 1993 | 520           | 420              |
| 1994 | 530           | 630              |
| 1995 | 420           | 700              |
| 1996 | 390*          | 500              |



\*Guelph station terminated in September 1996.

Source: Wellington-Dufferin-Guelph Health Unit, data from Ministry of Environment

## **HARD TO SAY**

**(i) Description of the indicator:**

The indicator which is available is the number of hours in a year when the standard for ozone content of the ambient air is exceeded by the government monitoring station in a given community. The concentration which is considered to be a safe and acceptable level in terms of human and animal health is 50 parts of ozone per billion parts of other components in the air.

**(ii) Guiding principle which is represented by the indicator:**

The principle is that the larger environmental systems which affect all people should be maintained at or below a level of contamination which is considered to be a safe level of exposure for the population. Each community should know its outdoor air quality by having a local air monitoring station.

**(iii) Long-term goal for the system:**

Control sources of ozone so that there are no occurrences which exceed health standards.

**(iv) Short-term target:**

Increase public and political pressure on governments to set and enforce emission standards in our own region, so as to put pressure on other governments to control their emissions which generate damaging levels for southern Ontario.

**(v) Pressures and impacts on the system:**

It has been known for a long time that the major sources of ozone in the air affecting southern Ontario are located in American states to the south and west of our region, particularly Ohio and Michigan where the major generators of the air emissions which create ozone by interaction with the sun are located. Coal-fired electricity generators are major sources. Economic growth and increased level of gas emissions from internal combustion engines are major culprits.

**(vi) Limitations of the indicator:**

There no longer is a monitoring station in Guelph. Local authorities are powerless to affect the ozone creation in other jurisdictions.

**(vii) How to improve the performance:**

Maintain political and social pressure on our senior governments to negotiate with other governments to reduce the damaging effects of air pollution from other regions

### **How are we doing?**

The use of this indicator is difficult for the future, because there is no longer a monitoring station located in Guelph. Regardless, the major sources of these gases are located in other jurisdictions which are beyond our immediate control. The data for Guelph and Kitchener appear to show a rising trend in the periods of time when the acceptable standard is exceeded. There should be an air monitoring station in Guelph.

## Part C: INDICATORS OF SOCIAL AND ECONOMIC SUSTAINABILITY

### 13. EMPLOYMENT AND UNEMPLOYMENT - PERCENT OF LABOUR FORCE OVER AGE 15 WITH EMPLOYMENT

|                       | 1990   | 1997   | % Change |
|-----------------------|--------|--------|----------|
| Guelph people working | 54,800 | 59,370 | 8.3      |
| per 10,000 population | 6,196  | 6,196  | 0        |
| Guelph unemployed     | 2,500  | 4,930  | 97.2     |
| per 10,000 population | 283    | 515    | 82.0     |

Source: United Way Community Services of Guelph and Wellington based on Stat. Canada, Labour Force Survey

#### NEEDS IMPROVEMENT

(i) **Description of the indicator:**

This indicator is the measure of the percentage of Guelph residents over the age of 15 years who have full-time or part-time employment, including self-employment and unpaid family employment. It is not possible to identify those with part-time employment who would like to work full-time but who involuntarily cannot obtain work on a full-time basis. Nor is it possible to identify those who take two or more part-time jobs as their only recourse.

(ii) **Guiding principle which is represented by the indicator:**

The principle represented in this choice of indicator is that for those who wish to work full-time this is the most desirable state of their lives and the most meaningful kind of employment. It is thus believed that there should be maximum opportunity for those who wish to have full-time employment.

(iii) **Long-term goal for the system:**

The goal is to have full-time employment for all who seek it, within their level of competence and aspirations.

(iv) **Short-term target:**

To increase the percentage of the labour force who have full-time employment.

(v) **Pressures and impacts on the system:**

People who cannot find employment on a full-time basis, when they wish to do so, must make less desirable compromises in their career paths. They may, for example, take only part-time work, usually at a lower income, or they may work in a kind of job which is below the level their skills and aspirations. There is an increasing

incidence of self-employment and alternative occupations which may be missed in the data source.

**(vi) Limitations of the indicator:**

The official records of labour force data have some limitations. These data are limited in one sense, because they combine all kinds of employment, and the most significant kind of employment would be full-time, but that measurement is available for only metropolitan areas. In addition, it is not possible to identify many people who have “dropped out” of the labour force and no longer seek employment because they have given up hope of finding the kind of work for which they are skilled, or they have given up because they feel inadequate.

**(vii) How to improve the performance:**

Increase the efforts at attracting and increasing local employment opportunities whose labour requirements match those local residents who are unemployed.

**How are we doing?**

The data for Guelph are somewhat ambiguous, but it is clear that the percentage of the labour force who are officially unemployed has increased markedly from 1990 to 1997. It appears that Guelph needs to have more employment opportunities to achieve the target and move toward the goal.

**14. INCOME LEVEL - PERCENT OF FAMILIES WITH LOW INCOME**

| <b>Guelph</b>   | <b>Number</b> | <b>Per Cent</b> |
|---|---------------|-----------------|
| <b>1986</b> Economic Families                                   | 20,940        |                 |
| Low income families   | 1,935         | 9.2%            |
| Persons in low-income families                                  | 9,820         | 12.9%           |
| <b>1991</b> Guelph Economic Families                            | 22,465        |                 |
| Families with low income  | 1,875         | 8.3%            |
| Persons in low income families                                  | 9,425         | 11.6%           |
| <b>1991</b> Province low income economic families as % of total |               | 10.9%           |
| Province persons in low income families as % of total           |               | 13.1%           |

## **Families Receiving Social Assistance**

|             | <b>Number</b> | <b>Rate Per 10,00 Population</b> |
|-------------|---------------|----------------------------------|
| <b>1990</b> | 6,773         | 424                              |
| <b>1997</b> | 11,253        | 657                              |

Source: United Way Community Services of Guelph and Wellington

## **NEEDS IMPROVEMENT**

### **Changes in Per Capita Income**

|                  | <b>1989</b> | <b>1992</b> | <b>% Change</b> | <b>1995</b> | <b>% Change<br/>1992-95</b> |
|------------------|-------------|-------------|-----------------|-------------|-----------------------------|
| Guelph community | \$18,466    | 19,839      | + 7.4%          | 20,816      | +4.9%                       |
| Province         | \$18,614    | 19,519      | + 4.9%          | 20,163      | +3.3%                       |

Source: Stat. Canada - Based on tax-filer returns - definition of income changed between 1989 and 1992)

## **HARD TO SAY**

### **(i) Description of the indicator:**

There are two indicators selected to examine the average level of incomes in Guelph and the incidence of low-income families (sometimes referred to as "poverty"). The per capita income is based on income tax returns filed by taxpayers with the Government of Canada. It therefore does not include those persons who have not earned enough to need to file a tax return. There is an official definition of "low income" which is based on whether a family spends more than a certain percentage (56%) of their income on necessities (food, clothing and shelter). People who spend over the floor on necessities are considered to be in "poverty". The "low-income cut-off" in dollars for a community of our size for a family of four in 1996 was \$27,338 according to the Ministry of Supply and Services.

### **(ii) Guiding principle which is represented by the indicator:**

The principle involved in looking at incidence of low income and of trends in income is that there is a social desirability in having average incomes increase and in reducing the incidence of low incomes.

- (iii) **Long-term goal for the system:**  
Maximize incomes with a socially desirable degree of equality while maximizing the opportunity for each person in the community to create income to the level of their abilities.
- (iv) **Short-term target:**  
To reduce low-income incidence.
- (v) **Pressures and impacts on the system:**  
A society which does not have excess wealth or poverty will put less pressure on the environment. Low incomes give incentives to take all available value from one's surroundings, with little or no concern for the future. Low incomes or extreme inequality of incomes reduces the quality of life and of enjoyment of many people.
- (vi) **Limitations of the indicator:**  
The indicator uses data which are relatively blunt in definitions and timeliness. It appears that we can have a rising level of average income while also having increasing numbers of people at the bottom end of the income scale. Usually this is indicative of a widening gap between rich and poor. It is impossible to know whether the first effect causes the latter change.
- (vii) **How to improve the performance:**  
Improve opportunities to earn a good living wage for all persons, by all possible means of improvement, which would include education and training, and also programmes which create increased feelings of optimism, self-esteem, and hope that a person counts in the society.

### **How are we doing?**

The picture is mixed. In 1989 the per capita income in Guelph was lower than the level of all Ontario, but from that date to 1995 the Guelph average income was higher than the Provincial average. On the other hand the number of people who were classified as receiving social assistance rose in absolute numbers and as a rate per 1000 population. The period from 1986 to 1991 is of limited current relevance, but it does indicate that in that period, Guelph reduced the number of "economic families" which were considered to have low income, and in 1991 had a lower incidence of such families than the Province as a whole. The recent period from 1990 to 1997 shows that Guelph has a considerable increase in the number of persons receiving social assistance, which is an indication of increasing low income.

## **15. INCOME LEVEL - MEDIAN FAMILY INCOME**

|      |          |                 |               |          |
|------|----------|-----------------|---------------|----------|
| 1991 | Guelph   | Census families | median income | \$49,624 |
|      | Province | Census families | median income | \$50,044 |

## **HARD TO SAY**

**(i) Description of the indicator:**

The level of median income in Guelph can be compared to the level of median income in Ontario as a whole. This means that half of the families have incomes below this measurement and half of the families have incomes above this figure.

**(ii) Guiding principle which is represented by the indicator:**

The goal is to compare the incomes of Guelph residents with those of Ontario residents in total. This indicates whether Guelph over time is falling behind or is keeping up with the Ontario economy in general, in terms of income available to our residents for spending and paying for public services and infrastructure through our taxation systems. If our local average were to get out of step with the Provincial economy, we would need to investigate the causes and determine if our local economy were in real difficulty because a gap would likely cause problems unless the gap had a good explanation. If our average income became much higher than the Ontario average there would be equally urgent need to find the reasons.

**(iii) Long-term goal for the system:**

The long-term goal is to maintain our position relative to other parts of Ontario.

**(iv) Short-term target:**

It would appear reasonable to maintain our current standing in Ontario.

**(v) Pressures and impacts on the system:**

One of the pressures on the system is that a declining level of income relative to the Province would mean that we are less able to provide our residents with goods and services, both public and private, which they would like.

**(vi) Limitations of the indicator:**

A median is a rough measure of the income distribution.

**(vii) How to improve the performance:**

Continue the efforts of investors, employers, and civic officials to keep Guelph an attractive community in which to live and to operate businesses and institutions.

### **How are we doing?**

Guelph appears to be maintaining its relative position and not showing any substantial problem. There seems to be no cause for alarm.

## 16. LABOUR FORCE WITH POST-SECONDARY QUALIFICATIONS

|      |                        |   |        |
|------|------------------------|---|--------|
| 1986 | Guelph                 | labour force with post-secondary qualifications | 22,590 |
|      | Population over age 15 |   | 60,895 |
|      | Per cent               | 37.1%   |        |
| 1991 | Guelph                 | labour force with post-secondary qualifications | 28,135 |
|      | Population over age 15 |   | 68,825 |
|      | Per cent               | 40.9%   |        |
| 1991 | Ontario                |   | 36.6%  |

Source: Statistics Canada, Labour Force Survey

### MAKING PROGRESS

**(i) Description of the indicator:**

The indicator measures the degree to which Guelph people in the labour force are educated to a relatively high level, i.e., the kinds of education beyond a high-school certificate. Post-secondary education provides an individual with the knowledge to take advantage of a wide array of employment opportunities. It provides flexibility in job seeking, and provides the adaptability to be able to respond to changes in the work place, which is a constant need in the modern age. Post-secondary education does not necessarily mean university, it could mean college education or on-the-job apprenticeship, or other kinds of formalized training and education. Education does not need to be job-related; it could lead to spiritual growth, aesthetic development in any of the arts or simply heightened ability to judge situations and alternatives.

**(ii) Guiding principle which is represented by the indicator:**

The principle involved here is that every member of the work force should have as much education as needed to allow that person to adapt and grow with the changes in their living situation. This maximizes the ability to produce and create so as to enrich the person's happiness and contribution to family and community. It also increases a person's feeling of accomplishment and self-worth; beyond that there would be a sense of being able to take on increased opportunities and challenges.

**(iii) Long-term goal for the system:**

Provide opportunities to all members of the labour force to acquire at reasonable cost those kinds of skills and knowledge which are recognized as adding to their productivity and happiness in life.

**(iv) Short-term target:**

Continue increasing the rich opportunities which are available and remedy shortcomings as they become known.



(v) **Pressures and impacts on the system:**

The local economy and community has a general goal of responding to its best ability to all alternatives and opportunities. Post-secondary education is a way to reflect improvements in the abilities of the population.

(vi) **Limitations of the indicator:**

There are other forms of learning which are not necessarily captured in the official data of the Census of Canada. Post-secondary education is no guarantee of employment at the level of one's education or in his/her chosen field.

(vii) **How to improve the performance:**

Identify any conditions which act as barriers to persons who would like to proceed further on their education and provide assistance to persons to achieve their highest level of potential.

**How are we doing?**

In 1991, Guelph labour force had a higher level of post-secondary education than was true in Ontario as a whole. This is commendable and reflects the value of having both a university and a community college available within our city and within short distances of our community. Guelph is making progress.

**17 STABLE HEALTHY FAMILIES**

(a) **Number of Children in Care of Family and Children's Services:**

| <b>Guelph and Wellington County<br/>(data at year end, including other wards)</b> | <b>Number</b> | <b>Rate Per 1000<br/>Population</b> |
|---|---------------|-------------------------------------|
| <b>1990</b>   | 114           | 1.360                               |
| <b>1995</b>   | 109           | 1.200                               |
| <b>1996</b>   | 109           | 1.188                               |
| <b>1997</b>   | 117           | 1.220                               |

Source: Family and Children's Services of Guelph and Wellington County

(b) **Family Preservation:**

Family and Children's Services of Guelph and Wellington County carry out a preventative programme aimed at avoiding taking children away from a family to put them into care; the programme is called Family Preservation. It is described as an "intensive short-term, in-home support for children and their parents in families where the child(ren) would otherwise require out-of-home placement to ensure their on-going protection".

This is clearly a preventative programme which attempts to keep children from having to be taken out of the family home by providing instruction for the parents in skills which appear to be weak or lacking in the home. It involves a number of hours of counselling each week for a period of ten weeks. These are problem situations where the agency can try to prevent the child(ren) going into care.

### **Guelph and Wellington County Family Preservation Programme**

|                              | <b>1995</b> | <b>1996</b> | <b>1997</b> |
|------------------------------|-------------|-------------|-------------|
| Number of families           | 73          | 108         | 98          |
| Rate per thousand population | 803         | 1.177       | -----       |

#### **(c) Spousal Assault Occurrences**

|                      | <b>1993</b> | <b>1994</b> | <b>1995</b> | <b>1996</b> | <b>1997</b> |
|----------------------|-------------|-------------|-------------|-------------|-------------|
| Guelph               | .....       | 102         | 96          | 85          | 105         |
| Guelph per 1000 pop. | .....       | 1.1         | 1.1         | 0.9         | 1.1         |
| Province             | 19,671      | 21,517      | 18,511      | _____       |             |

Sources: Guelph Police Dept. and Ministry of the Solicitor General

### **HARD TO SAY**

#### **(i) Description of the indicators:**

There are three indicators involved here. The first one measures cases in which children are in such difficult conditions that they need to be taken into the care of the Family and Children's Services agency, removed from their families temporarily or permanently. The second indicator measures the number of families which are in some difficulty and might require taking the child(ren) into care but staff assistance might help avoid that more extreme remedy. Those two measures are reported by the Family and Children's Services agency of Guelph and Wellington County.

The third measure reports the events in some families which are classified by the police as occurrences of assault by one spouse on the other spouse. The spouses may be legally married or in common-law marriages. These assaults are not necessarily proceeded with by the police to the extent of the laying of legal charges. The data were assembled by local police using definitions and standards established by the Provincial Solicitor General.

#### **(ii) Guiding principle which is represented by the indicator:**

The principle here is that the families of Guelph should minimize situations in which children need to be removed for care or in which one spouse assaults the other spouse. Resources should be provided to look after those cases which do arise. In all such cases the families must be considered not to be stable and healthy. The

causes may be short-term or more permanent. In either case there needs to be help provided and remedial actions taken to help avoid further unhealthy conditions.

**(iii) Long-term goal for the system:**

The goal in the long-term is to work toward zero cases of children in care because the need for removal of children from families would have ended, and zero cases of spousal assault because couple's lives would have improved to the point of removing economic insecurity, chemical abuse and other causes of spousal assaults.

**(iv) Short-term target:**

Continue the recent apparent improvements in these kinds of evidence of social and individual malaise, and reduce the ills which create these situations.

**(v) Pressures and impacts on the system:**

Cases of unhealthy and unstable families may arise from a myriad of causes. Social workers state that the dominant causes arise from unstable financial situations such as unemployment, or fear of loss of income. Drugs and abuse of alcohol and other narcotics are also commonly involved, but those abuses tend to be associated with economic anxieties or other issues which cause a sense of failure or unworthiness.

**(vi) Limitations of the indicator:**

The data are somewhat variable, and a clear trend is not fully established. The data are dependent on the reporting of assault and may under-measure actual incidents. There may be a lack of supporting services to encourage reporting by a vulnerable spouse.

**(vii) How to improve the performance:**

Increase the levels of public awareness of the causes of family breakdown , and provide family supports and programmes which will help families to take control of their lives, so as to prevent further incidents of these kinds.

**How are we doing?**

The data show progress, despite increases in unemployment and in social assistance needs in Guelph. There are no guaranteed remedies for these problems and continued care and study are required. The short-term evidence points to some improvement, but there remains much to be accomplished.

## **18. RECREATION**

### **NUMBER OF FACILITIES AVAILABLE FOR THE PUBLIC**

There are over 180 clubs and committees which are involved in providing or organizing recreational activities in municipal and other facilities. The City owns or leases 415 ha (1,025 acres) of land for parks and natural areas ,which is .005 ha per person. The City

owns and operates 4 arenas, 6 recreation trails with total length of 18.7 km, 24 tennis courts, and two multi-facility recreation centres. There are also a number of commercial facilities such as health clubs and four golf clubs, as well as the many facilities of the University of Guelph and some primary and secondary schools. Not all commercial facilities are available to members of the public.

Source: Dept. of Recreation, Parks and Culture

## **HARD TO SAY**

**(i) Description of the indicator:**

The indicator which has been selected is the number of recreation facilities which the City of Guelph provides for public use by the community as a whole.

**(ii) Guiding principle which is represented by the indicator:**

It is believed by a variety of experts that recreation for persons of all ages is an important part of physical and mental health, and provides an important binder within the community to promote cohesion and shared objectives.

**(iii) Long-term goal for the system:**

To provide ample facilities and staff to meet the constantly changing needs of the population of all ages in all neighbourhoods, from infants to the aged.

**(iv) Short-term target:**

Continue studies and programme planning needed to keep up to date with the needs and interests of the community and its growing neighbourhoods.

**(v) Pressures and impacts on the system:**

Recreation facilities require considerable expenditure of capital funds and operating funds to maintain the facilities and the programmes in good condition. Pressures of government budget cutbacks have reduced the ability of municipal governments to maintain the levels of spending that formerly occurred. Guelph has apparently not reduced the programmes that it had a decade ago, but there has been increased use of user-fees, which endanger the ability of low-income families to take advantage of the programmes. The changing age structure of the population means that continued challenges emerge to update and change programmes to suit the changing needs of the system.

**(vi) Limitations of the indicator:**

This indicator is limited to municipally owned and operated facilities. There are many private facilities as well, which have not been measured because of the difficulties of measuring them. Some of the private facilities offer access to the public but not on an unlimited basis. The data do not tell us the degree of use of the facilities and the hours available to users.

**(vii) How to improve the performance:**

Continue and expand funding for studies and for construction and staffing of programmes.

**How are we doing?**

Continuous pressure on existing facilities, especially in the new residential areas where there had been no activity in the past. Changing age structure and tastes create ever-changing needs and demands. Guelph already shows signs of stress in recreation facilities, as shown by the great demand for facilities and programmes in the west side of the city, where there has been recent growth of population. Further, the emerging residential growth in the south end makes it certain that demands will be felt there, pressing the City to meet its official policies.

**19. ENVIRONMENTAL EDUCATION**

**Amount of class time on environment and ecology per pupil in grades 1 to 13, indoors and outdoors**

The two Boards of Education have different levels of environmental education, and currently the Roman Catholic School Board appears to have more active programmes.

In the Public Board of Education all environmental courses are optional, except for one unit on ecology which is required in Grade 10. The policy of the previous government was cancelled by the current government. There are guidelines from the Province on environmental subjects in Environmental Science and Geography. The County Board has an environmental policy but it is not being followed because of shortage of staff and budget. There is an environmental leadership programme available during one semester of Grade 11 when a group of students gets four credits for six weeks at Crieff. Also, during that period a group of Grade 5 students can go for one week at Crieff. The Maintenance Department of the County Board has one qualified environmental graduate on staff who is Manager of Environmental Issue Projects, which include promotion of litter-less lunches, wet-dry waste sorting, energy saving, monitoring of equipment, retrofits, lighting, etc.

Source - Board of Education and teachers in representative schools, via Stan Kozak

The Wellington County Roman Catholic Board of Education has its own activities in the area of environmental education. The reductions in this area in this Board have been smaller than the reduction in the Public School Board. The Catholic Board still maintains its arrangement with the Grand Valley Conservation Authority and its nature centre at Guelph Lake. The Catholic Board in the high schools has six elective science courses which include environmental aspects at the general and advanced levels.

Source: Mrs. Holman, St. James High School

## NEEDS IMPROVEMENT

**(i) Description of the indicator:**

The indicators in the area of environmental education are mostly qualitative. To some degree each school has freedom to provide some teaching time to cover environmental processes in individual courses, depending on the interests and knowledge of each teacher. The data available shows the flexibility which occurs. At the primary levels of education there is apparently no formal environmental component in the curricula. It is possible at the primary level for individual teachers to enrich the knowledge and awareness of children, but there is no systematic measurement possible at this time.

**(ii) Guiding principle which is represented by the indicator:**

It is evident that the awareness and knowledge of children at primary and secondary levels should be increased so that children will grow up with some sensitivity to the richness of natural systems and the vulnerability of nature to intrusions and damage by human activities of all kinds.

**(iii) Long-term goal for the system:**

Provide to all school children ample opportunities to learn about natural phenomena in the context of their other learning experiences so that all children will grow to adults with environmental understanding and sensitivity in their everyday lives and work experience.

**(iv) Short-term target:**

Restore and increase the formal and informal kinds of environmental education which are well known to experts in this area, helping every teacher to bring nature into their classroom discussions and examples.

**(v) Pressures and impacts on the system:**

Budget reductions in the educational systems have been severe, inducing teachers and administrators to sacrifice environmental education in favour of other kinds of teaching with higher profiles politically and in the media. The pressures have come from both the Provincial level of the Ministry and also at the local levels.

**(vi) Limitations of the indicator:**

The lack of formal arrangements limits the indicator currently to informal measurement.

**(vii) How to improve the performance:**

There need to be changes in government policy and increases in public awareness of the importance of environmental awareness and education.

## How are we doing?

It may be too strong to declare a disaster in environmental education, but it represents a danger to future public understanding of the need for careful and forward-looking management of our environment. We have not been doing well, except for the efforts of a few dedicated teachers who understand the importance to our society of environmentally-conscious adults.

## 20. LOCAL GOVERNMENT PARTICIPATION

### Percentage of eligible municipal voters casting ballots:

|                                | Votes Counted | Per Cent |
|--------------------------------|---------------|----------|
| 1994 eligible voters - 67,017, | 25,382,       | 37.87 %. |
| 1997 eligible voters - 67,984  | 24,902        | 36.63 %  |

Source: City Clerk

## NEEDS IMPROVEMENT

### (i) Description of the indicator:

The percentage of eligible voters who choose to actively exercise their franchise is a long-recognized measure of the level of political involvement by the public. There is an accurate and immediate count of votes cast as a percentage of persons eligible to vote in any municipal, provincial or national election.

### (ii) Guiding principle which is represented by the indicator:

The principle is that adult members of the community have an opportunity and a responsibility to become knowledgeable of the electoral process and to take part in the public processes by which decisions affecting the community are taken. An informed public is the best guarantee that decisions will be sound and attuned to the needs and wants of the community.

### (iii) Long-term goal for the system:

To have one hundred percent of eligible voters actually voting in every election.

### (iv) Short-term target:

To increase the participation rate in elections, through programmes to increase awareness and to decrease cynicism and apathy.

### (v) Pressures and impacts on the system:

There are many criticisms among some of the citizens about the public processes by which political decisions are made, and concerns about lethargy and cynicism among

many members of the community. The criticisms are often levelled at the several kinds of public media and at official information programmes.

**(vi) Limitations of the indicator:**

One criticism of the indicator is that the list of eligible voters may overstate the numbers who are eligible because the list may contain the names of individuals who have moved, died or are ill.

**(vii) How to improve the performance:**

Public education: Demonstrate that public authorities are concerned about the lack of interest. Demonstrate to people that their opinions are listened to and count in the way that decisions are made by the elected representatives.

**How are we doing?**

The voting rate in Guelph is about the same as other communities in Ontario, which suggests that the causes of low participation are common to all of Canadian public life. We are not doing very well. We have little or no activity aimed at increasing the voting rate.

## **21. COMMUNITY COHESION**

**(a) Number of volunteers participating in community organizations in the United Way:**

In 1996 the 26 agencies which participate in the United Way Community Services of Guelph and Wellington activities had 3,135 volunteers. Many other organizations have volunteers.

**(b) Dollars contribution per capita to United Way:**

In 1996 a total of \$1,478,720 was contributed, with population of 91,774 (subject to revision) this equals \$16.11 per capita. Individuals contributed 65% of the total contributed.

Source - United Way Community Services of Guelph and Wellington

## **NEEDS IMPROVEMENT**

**(i) Description of the indicator:**

There are two indicators which provide evidence of how healthy is our community in terms of its collective feeling about care for the community as a whole. These indicators can show whether most people care about how we look after individuals who have special needs which can be met only through joint activities by the community at large. The first indicator is the official record of how many volunteers contribute their time and personal skills to the activities of 26 agencies who participate in the traditional United Way programmes. The second indicator uses the



measure of money contributed to the United Way by individuals and companies located within Guelph. This can be converted to an average number of dollars contributed per resident of Guelph.

**(ii) Guiding principle which is represented by the indicator:**

There is a principle that in a really healthy community all its residents care whether there are other residents who have needs which they are unable to meet themselves and whose needs can be partly met with help from others. Some of those needs may be purely individual such as hot meals for disabled or elderly persons, and there may be collective needs such as a sense of security that in times of trouble they will be able to call on others.

**(iii) Long-term goal for the system:**

To have as many volunteers and cash resources as needed by leaders in community programmes, so that no person in need will go without assistance when required.

**(iv) Short-term target:**

To increase the revenue from contributions to the social agencies, and to increase the number of persons willing to volunteer to the agencies.

**(v) Pressures and impacts on the system:**

Recent increases in unemployment and job insecurity have increased the pressures on many individuals, increasing mental illnesses and stress. The changing age structure of the population means that more people need aid for ailments and difficulties of the elderly, such as loneliness. Money for programmes and volunteer time can help.

**(vi) Limitations of the indicator:**

There is no total measure available of all volunteers who help in all possible organizations, but the existing report from United Way is reliable, even if partial in its coverage of all volunteer activities. Similarly, the local contributions of money to United Way do not include the total of donations to activities which help local people. There is no completely comprehensive measure of all volunteer activities or donations to organizations outside of the United Way Community Services group of charities

**(vii) How to improve the performance:**

Increase the sense of community among the residents of Guelph by increasing awareness of individuals who have needs they cannot meet with their own personal resources of energy and health.

**How are we doing?**

It is difficult to know what are the right levels of both donations and volunteer efforts. There appear to be no absolute standards which apply. In volunteer organizations there is a frequent impression that the persons who actively volunteer their time are “burned out” with

so many demands for volunteer efforts. The per capita donation level in Guelph to United Way appears to be remarkably low compared to our per capita income, but numerous other organizations raise money as well. The donation level may be held down in Guelph by the fact that so many of our employers are branch plants of larger corporations with little or no flexibility given to local offices to contribute to local charities. There are no data available to show trends, but the current findings indicate stress on levels of volunteerism and charity donations as evidence of community cohesion.

## **22. PERSONAL HEALTH**

The indicators which have been selected contain data on the years of life which a person potentially might have which were lost as a result of a premature death from an illness, and also the causes of death from disease.

### **Potential Years of Life Lost (by major disease groups):**

(Per cent of total PYLL, Guelph 1994)

|                          |            |
|--------------------------|------------|
| Cancer                   | 44         |
| Circulatory System       | 25         |
| Injuries                 | 18         |
| Congenital Abnormalities | 9          |
| Other                    | 3          |
| <b>Total</b>             | <b>100</b> |

### **Leading Causes of Death (per cent of total):**

|                             |            |
|-----------------------------|------------|
| Cancer                      | 29         |
| Circulatory System Diseases | 41         |
| Respiratory Diseases        | 7          |
| Injuries                    | 5          |
| Other                       | 19         |
| <b>Total</b>                | <b>100</b> |

Source: Ontario Mortality Database, Ontario Ministry of Health, 1997

## **NEEDS IMPROVEMENT**

### **(i) Description of the indicator:**

The two indicators used here are selected from voluminous data on health, disease, and deaths in Guelph and Wellington County. These summary measures give us a picture of which diseases cost our community the largest losses in terms of "Potential Years of Life Lost" (PYLL). This measure combines the age of death from a given kind of disease with the expected years of life that the average person would otherwise have lived if they had not died from that disease. For example, a

female infant who dies from an abnormality in the first year would have a PYLL of 81, the average life expectancy of a female at birth. The other indicator simply measures each year the cause of death as percentage of all deaths that year.

**(ii) Guiding principle which is represented by the indicator:**

The principle is probably that every individual should have a healthy life and die from natural deterioration (“old age”) and not from a disease which is preventable. The alternative is what we see, with many people dying from degeneration of their system through a disease such as cancer, which may be preventable or postponable by reduction of conditions which stress immune systems or other body functions. Some causes of death are caused by unhealthy ways of life or dangerous habits such as chemical or narcotic abuse. There is an inescapable public policy element in the efforts to satisfy this guiding principle.

**(iii) Long-term goal for the system:**

To reduce the incidence of all preventable diseases and to increase care to ill people in order to reduce the damages suffered from illness, and to increase knowledge of every person about how to achieve the highest possible level of “wellness”.

**(iv) Short-term target:**

Reduce the Potential Years of Life Lost in all kinds of disease, by delaying the onset of diseases and reducing the damages suffered from any disease. Increase the levels of understanding of all people, including health care professionals of how to prevent the onset of diseases, and how to identify disease at the earliest stage in its incidence in a person.

**(v) Pressures and impacts on the system:**

The prevalence of disease can be increased by lack of understanding of the body and its functioning. The damages from disease can be reduced by the level and skills of medical care available to people. Some point to possible dangers from the “chemical soup” in our air, water and food, where additives provide benefits but may affect some individuals harmfully.

**(vi) Limitations of the indicator:**

These two indicators are only a tiny view into the vast array of knowledge about medicine and health.

**(vii) How to improve the performance:**

Provide to the community from the earliest possible age increased understanding of the ultimate effects of the common habits of eating and lack of exercise which contribute to the causes of disease later in life. The process of education must start in the home but it can be helped through information provided in schools. Give to people a wish to live as long and healthily as possible.

### **How are we doing?**

Canada has a health system which is among the best in the world in terms of its availability to every member of the community. Recent financial pressures have increased the workloads on health professionals, and increased the vulnerability of people to delayed treatment. The level of medical understanding of all people could be increased by public education, and by innovation in prevention clinics.

## **23. FINE ARTS - CULTURAL DEVELOPMENT**

Two indicators are used here:

- (a) staff and classroom time devoted to instruction and appreciation of the arts and drama in primary schools, and
- (b) participation rate in art and music clubs in secondary schools.

There is no staff member in the public Board of Education solely responsible for the Arts. The sole guideline is that every pupil in grades 2, 4, 6, and 8 shall see one live performance during that school year, which might be a band or puppet performance, for example. The Public Board of Education has cut all Music Resource Teachers in the Board, and cut all instrumental music staff in grades 7 and 8.

In addition each secondary school was contacted to learn how many arts clubs are active and what proportion of students take part.

Sources: Miss Liz Schroder, the former Music Resource Teacher, Public Board of Education, and teachers in each secondary school and high school.

### **NEEDS IMPROVEMENT**

Centennial CVI - 11 clubs, about 400 participants, 26% of students.

Guelph CVI - 20 clubs, 355 participants, 25% of students.

John F. Ross CVI - 13 clubs, 385 participants, 21% of students.

Our Lady of Lourdes High School - 9 clubs, 174 participants, 18% of students.

St. James High School - 14 clubs, 380 participants, 32% of students

College Heights Secondary School is a special case with most creative work taking place within regular classes. They have a very successful literacy activity with other students being peer mentors doing tutoring of those who need help.

(i) **Description of the indicator:**

The indicator selected is to ask each secondary school how many clubs have been organized by students, with teacher assistance to carry on extra-curricular activities in the arts: music, drama, dance, photography, writing and so on.

(ii) **Guiding principle which is represented by the indicator:**

The principle is that stimulation of interest and skills in the field of the arts will help to promote interests and activities in the adult population as these students move into their adult lives. It is believed that awareness and interest in the creative fine arts helps to broaden the perspective of individuals beyond their own concerns into community problems that arise in a civil society. It is one branch of education which tends to be found in the extra-curricular sphere. Artistic involvement tends to open up creative parts of a person's mind, which then can increase innovation and entrepreneurship in their economic lives as well as in their personal pleasures and satisfactions.

(iii) **Long-term goal for the system:**

Make available as part of curriculum and as volunteer activities the resources to stimulate an awareness of and skills in the many kinds of arts activities which open up the creative instincts of every person.

(iv) **Short-term target:**

Restore funding to specialist teachers and provide resources to encourage music and other arts activities in courses and in extra-curricular activities.

(v) **Pressures and impacts on the system:**

Budget reductions imposed upon schools and teachers have put reduced availability of arts activities. Economic anxieties have tended to pull some students and teachers away from these activities which have so few economic incentives to the individuals involved. Social and peer pressures may tend to discourage involvement in arts activities which appear not to have any payout in the employment market. However, it is clear that such opportunities do widen the minds of many students to career openings not represented in the basic curriculum.

(vi) **Limitations of the indicator:**

The data are based on estimates or enrolments in actual clubs in a particular range of activities; however, there are other extra-curricular activities which have value which are not included in this set of data. The actual number is difficult to measure because a student may be in two or more clubs, or may participate for part of the school year and not at other times. A number of organizations in Guelph provide cultural development as well as the schools. There is a great diversity of sources of fine arts stimulation available such as many artists' studios, music festivals, and commercial music venues. This diversity can create a market for interests developed in the schools.

(vii) **How to improve the performance:**

Provide more leadership and teaching resources capable of providing the assistance needed by student groups. Reduce economic pressures on high school students to take on jobs which reduce their opportunities to devote time and energies to extra-curricular activities.

**How are we doing?**

The levels of activity appear to have been somewhat reduced, but many teachers continue to help to guide activities. The rates of participation appear to be relatively low, but it is difficult to draw conclusions.

**24. PUBLIC SAFETY**

| <b>Rates of Burglary, Assault and Fires</b> |  | <b>1994</b> | <b>1995</b> |
|---|--|-------------|-------------|
| Robbery                                     | with violence or threat                    | 31          | 32          |
| Burglary                                    | i.e. break and enter, to private dwellings | 381         | 412         |
| Burglary                                    | i.e. break and enter, to businesses        | 343         | 294         |
| <b>TOTAL OF THESE CATEGORIES</b>            |  | <b>755</b>  | <b>738</b>  |

Source: Dept. of Police -- Sgt. Fred Fenwick.

|                                     | <b>1993</b> | <b>1994</b> | <b>1995</b> | <b>1996</b> |
|-------------------------------------|-------------|-------------|-------------|-------------|
| Fires in homes                      | 42          | 51          | 24          | 27          |
| Fires in apartments                 | 21          | 10          | 20          | 11          |
| Total fires in homes and apartments | 63          | 61          | 44          | 38          |

|  |             |      |
|--|-------------|------|
| Number of calls out responding to emergency situations | <b>1994</b> | 1700 |
|  | <b>1996</b> | 3700 |

The calls out include situations that do not actually become a fire, e.g., fat boiling over on a stove that creates smoke but does not ignite, or smoke alarms that sound with no fire.

Leaflets distributed to school children

8,000 with plan for 1997 of 20,000 leaflets.

These efforts are addressed to education on prevention and safety.

Source: Chief Cutten, Fire Department.

**MAKING PROGRESS**

(i) **Description of the indicators:**

The indicators which have been chosen are the number of incidents of robbery and burglary, and of fires in residential units.

- (ii) **Guiding principle which is represented by the indicators:**  
The indicators reflect the most common threats to safety to persons in their homes and in their lives around the City. The indicators thus reflect a vital concern of all citizens, that they should be safe from robbery and fire. Dangers from theft and fire can happen to anyone. The principle is that we should minimize those dangers.
- (iii) **Long-term goal for the system:**  
The ultimate goal would be to have zero levels of these unfortunate events in our community.
- (iv) **Short-term target:**  
Continue the decrease in the past few years of fires in homes and in robbery and burglary. Continue the educational efforts of the police and fire departments.
- (v) **Pressures and impacts on the system:**  
We do not know the detailed causes of the trends. For example, the robbery data may be helped by the declining size of the age group 18-24 years. Low income and insecurity can sometimes lead to theft.
- (vi) **Limitations of the indicator:**  
These two measurements do not cover the entire range of possible dangers to public safety, and the time period reported is relatively short.
- (vii) **How to improve the performance:**  
Increase the resources available to promote the preventive work in these areas.

### **How are we doing?**

The leadership and resources in these two agencies appear to be adequate to achieve progress. There has been evidence of progress in both of these indicators.

## **APPENDIX 1: ADDITIONAL DATA**

### **POPULATION PROJECTIONS AND AGE DISTRIBUTION**

Estimates of population are based on the Census which is taken in June every five years, with annual adjustments based on the property Assessment data. There is a problem determining the actual population because many of the students who attend our University have a hometown outside Guelph and live here only from September to May and thus are not here in June for the Census. It is estimated that about 8,000 must be added to the Census-based data series in order to include the seasonal university student residents. The data below include the population of the areas annexed to the City from the adjacent townships in 1993.

|      |        |
|------|--------|
| 1986 | 78,235 |
| 1990 | 83,849 |
| 1991 | 87,673 |
| 1992 | 89,948 |
| 1993 | 90,859 |
| 1994 | 89,557 |
| 1995 | 90,894 |
| 1996 | 91,774 |
| 1997 | 95,821 |

Source: Ministry of Revenue assessment file, based on Census data

|                |                                       |         |
|----------------|---------------------------------------|---------|
| Projected 2001 | (medium level, including UG students) | 113,000 |
| Projected 2011 | (medium level, including students)    | 129,600 |
| Projected 2016 | (medium level, including students)    | 17,500  |

Source: Projections by Department of Planning and Business Development, Guelph

#### **1996 Population by Age Group (per cent of total)**

|       | <b>Females</b> | <b>Males</b> |
|-------|----------------|--------------|
| 80+   | 1.7            | 0.9          |
| 65-79 | 5.3            | 4.0          |
| 46-64 | 9.6            | 9.2          |
| 25-44 | 17.6           | 18.0         |
| 15-24 | 7.0            | 6.9          |
| 0-14  | 9.5            | 10.3         |

Source: Health Unit



## **APPENDIX 2: REPORT OF DISCUSSION GROUP, 9 JULY 1998**

A group of invited people took part in a discussion of the Draft SOSR on 9 July 1998. The participants were seated around the circle of Councillors' chairs in the Council Chambers. A group of others were present as observers, seated outside the circle.

The participants included the following:

Robert Barron  
John Edwards  
Sharon Connors  
Lorrie Minshall  
Laura Murr  
Nancy Shoemaker  
James Taylor  
(Shirley Hunt had to leave early)

The observers included the following:

James Etienne  
Ray Funnell  
Karen Farbridge  
Ross Irvine  
Tom Slomke  
George Smith  
Stephen Rodd.

Several of the invited persons were unable to attend because of other commitments, and they were asked to send written comments if they wished. These included the following, among others:

Sean Armstrong  
Shirley Hunt  
Stan Kozak  
Norman Ragetlie  
Steven Shadd  
Gus Stahlmann.

### **Summary of the Discussion:**

The facilitator, Don Drone, after the introductions and statement of purposes of the meeting, asked the participants to comment on each of the 24 sections of indicators.

It may be an over-simplification to say that the comments were of two main kinds. There were a number of suggestions for added kinds of information and data. These suggestions have been tabulated below.

There were also several suggested changes to wording, which have been taken into account in the final editing.

Some comments questioned the relevance of one or more indicators to ecological sustainability because they were related to quality of life. These latter comments appear to have overlooked the introduction section which stated that Green Plan required the State of Sustainability Report to report on social and economic sustainability as well as natural environment sustainability.

Some comments indicated that the person wished the report to provide data to allow comparison of Guelph's performance against the performance of the nation as a whole, the province or other urban areas. This would greatly expand the scope of the report and would create a different kind of report, serving a different purpose, i.e., relative performance among places at the same time, rather than relative trend in Guelph's sustainability performance over time from one period to another, which is the central function of state of the environment reporting.

There was a request for this kind of report to provide information on specific targets for each kind of measurement, if such a target exists in legislation or policy, to see how well or how badly Guelph's situation compared to the target. One difficulty in such a task is to express legislation or regulations in a single number when it may be subject to complex considerations of legal or technical kinds which permit variation from the single figure.

The first topic of discussion opened up by the facilitator was what were people's opinions of the best method to make the report available to the community as a whole. The participants were given as a sample a summary report entitled "Hamilton-Wentworth Sustainability Indicators", which provided on two sides of a legal-sized page the names of each of their thirty indicators with for each a graphic indication of three possible judgments :

- (a) Making progress (towards the target in Vision 2020),
- (b) Hard to say (mixed results with no clear trend), or
- (c) Needs improvement (worse than the 1993 benchmark).

There was general support for the general format of the Hamilton-Wentworth example, and comments were made that the summary would satisfy the interest by many people to know that such a report had been prepared. In addition, it was suggested that the report be available on the internet, and that copies be available to anyone who requested it.

From the lengthy discussion there have been extracted the suggestions of possible alternative or additional indicators. In two cases where data is now immediately available which was not available at the time the draft was written, there has been an effort to add the data to the draft. The suggested alternative or additional indicators are listed below.

The discussion was very valuable, and the comments and suggestion of the participants are very much appreciated.

**Alternative or Additional Indicators (listed by section):**

1.     **Protection of Natural Habitat and Ecological Sensitivity**
  - targets (if any) regarding natural areas and open space;
  - improvements in development standards to protect nature.
4.     **Financial Resources of Local Government**
  - programmes to create opportunities for industrial development and employment.
5.     **Automobile Travel**
  - expenditures to improve auto travel versus expenditures to improve bicycle and transit travel;
  - efficiency of auto use (passengers per car);
  - distance to place of work from home.
7.     **Water Consumption**
  - show separate data for water use by residential users and for all other uses (industrial, etc.)
8.     **Water Supply Reserve Capacity**
  - ability of aquifers to recharge (speed and quality).
9.     **Impact on Speed River**
  - oxygen content of river below Guelph and number of times oxygen content is too low;
  - tonnes collected by Speed River Cleanup volunteers;
  - diversity of microorganisms in the water.
10.    **Energy Consumption**
  - need better data of the kinds described in SOSR text.
11.    **Waste Reduction and Hazardous Waste**
  - how much of Guelph and Wellington waste is shipped for disposal elsewhere;
  - how much landfilled waste is unsorted.
12.    **Air Quality (outdoor)**
  - industries which have polluted the air;
  - contaminated soils (quality and quantity);
13.    **Employment and Unemployment**
  - compare local unemployment rate to national rate or to comparable areas;
  - youth unemployment.
14.    **Families with Low Income**
  - use of food banks;
  - children living below the poverty line.

17. **Children in Care of Family and Children's Services**
  - number of families receiving counselling;
  - number of babies with low birth weight.
18. **Recreation**
  - participation rate of population in active recreation;
  - kilometres of new or renovated trails.
19. **Environmental Education**
  - adult educational activity regarding environment.
20. **Local Government Participation**
  - attendance in meetings, workshops and demonstrations.
21. **Community Cohesion**
  - do survey of a sample of organizations outside the United Way to estimate activity by other volunteers, which would require an estimate of the total number of organizations which have volunteer input.
22. **Personal Health**
  - availability of beds, waiting time for elective surgery;
  - numbers going elsewhere (for treatment, consultations, and/or special facilities);
  - congenital birth defects.
23. **Fine Arts - Cultural Development**
  - number of artists in the community;
  - sample survey of persons participating in artistic activity.
24. **Public Safety**
  - response time of Fire Department;
  - deaths and injuries in auto accidents and occupational hazards.

**Comments:**

Some of these kinds of information are not measured currently by public authorities in a way which would provide authoritative data. Some would be difficult to do every three years with consistently comparable results. Some would be expensive and time-consuming to create and implement. It would be desirable to have indicators for which data are available for other communities in a comparable way.



# CITY OF GUELPH STATE OF SUSTAINABILITY REPORT

*2nd Edition — 1998 to 2001*

Prepared for the City of Guelph  
by  
the Green Plan Steering Committee

*March 2003*

# Acknowledgements

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The Green Plan Steering Committee would like to acknowledge the individuals who have formally contributed to this report. Their constructive input and technical assistance gives confidence that the report will increase in value and be supported by the community of Guelph.

We are especially grateful to the data providers. Without their participation this document would not be possible.

## Data Providers

- City of Guelph, City Clerk's Office
- City of Guelph, Environmental Services
- City of Guelph, Parks and Recreation
- City of Guelph, Works
- Family and Children's Services of Guelph and Wellington County
- Grand River Conservation Authority (GRCA)
- Guelph Hydro
- Guelph Transit
- Statistics Canada
- United Way of Guelph and Wellington
- Wellington Catholic School Board
- City of Guelph, Community Services
- City of Guelph, Planning
- City of Guelph, Taxation and Revenue
- City of Guelph, Water
- Federation of Ontario Naturalists, Guelph Office
- Guelph Fire Department
- Guelph Police Services
- Ministry of the Environment
- Union Gas
- Volunteer Centre of Guelph/Wellington
- Wellington-Dufferin Guelph Health Unit

Special appreciation is extended to the State of Sustainability Sub-Committee/writing team who devoted countless hours to prepare this report. Additional thanks to Jason Filer for the initial data collection.

## Writing Team

- Glynis Logue (Chair)
- Heather Kepran
- Lyle McNair
- Puni Piyasena
- Andrea Russell

Cooperation and involvement by many people and organizations will be critical to the long-term success of this reporting system. We welcome suggestions for future editions. Your comments strengthen the progress toward being a sustainable community.

Sincerely,  
*The Green Plan Steering Committee*

# Executive Summary

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The Green Plan, prepared in 1992–1994, was the first step in a strategic planning process to move the City of Guelph toward its vision of environmental sustainability in harmony with our economic and social development. In adopting the Green Plan, city council specified that a State of Sustainability Report (SOSR) be prepared every three years.

The report was to provide a comprehensive examination of the state of the natural systems and environmental features within Guelph. The scope of the SOSR covers not only the natural environment, the main focus of the Green Plan, but also the economic and social aspects of the community. The first SOSR was produced in 1998. This updated work builds on the original, covering the period 1998 to 2001.

This report looks at ten sustainability focus areas. In each area, success is measured using a series of indicators. Indicators are key measurements that provide a quick snapshot of the wellbeing of each focus area. More than one measurement may be used as part of each indicator.

## SOSR FOCUS AREAS

- Land Use and Development
- Water Conservation
- Energy Conservation
- Integrated Transportation
- Waste and Resource Management
- Outdoor Air Quality
- Employment Trends
- Stable Healthy Families
- Community Capacity Building
- Community Cohesion

In the report, each indicator is discussed in detail, with specific long-term goals and short-term targets defined. Three alternative judgements are used to describe the state of each indicator measure. These judgements are:

- The Guelph community is **making progress** in relation to the goal and target;
- The Guelph community **needs improvement** in its performance;
- It is **hard to say** whether we are moving in a favourable direction.

In some cases new data were not available and thus a judgement could not be made. To increase the reliability of the judgements, an attempt was made to have data providers review the prepared commentaries. This was possible for all of the environmental indicators, however, for many of the social indicators no review was possible.

The chart on the following page summarizes the findings of this report.

It is difficult to arrive at a single, all-inclusive result from the SOSR as the indicators reflect such disparate aspects of Guelph's environmental, economic and social wellbeing. However, the individual commentaries provided herein do show trends over time and future stresses in certain areas. The data in this report may also provide significant baseline data for the City to develop a more detailed benchmarking program in the immediate future.

In general, Guelph seems to be making positive strides in five of the ten broad focus areas. Seven of the 25 indicators are improving over

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## GUELPH 2001 STATE OF SUSTAINABILITY REPORT

### SUMMARY OF FINDINGS

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#### *INDICATORS OF ENVIRONMENTAL SUSTAINABILITY*

##### **Land Use and Development**

- Open Space and Natural Corridors  
— **Hard to say**
- Ecological Sensitivity and Habitat Protection  
— **Hard to say**
- Land Management  
— **Making progress**
- Balanced Development  
— **Needs improvement**

##### **Integrated Transportation**

- Automobile Travel  
— **Needs improvement**
- Transit Ridership  
— **Making progress**

##### **Water Conservation**

- Ground Water Quality  
— **Making progress**
- Water Consumption  
— **Making progress**
- Water Supply Reserve Capacity  
— **Hard to say**
- Impact on the Speed River  
— **Making progress**
- Surface Water Quality  
— **Needs improvement**

##### **Energy Conservation**

- Energy Consumption  
— **Needs Improvement**

##### **Waste and Resource Management**

- Waste Reduction and Hazardous Waste  
— **Needs improvement**

##### **Outdoor Air Quality**

- Ozone and Greenhouse Gas Emissions  
— **Hard to say**

#### *INDICATORS OF SOCIAL AND ECONOMIC SUSTAINABILITY*

##### **Employment Trends**

- Labour Force with Employment  
— **Hard to say**
- Income Level  
— **Needs improvement**
- Post-secondary Qualifications  
— **Making progress**

##### **Stable Healthy Families**

- Children in Care and Domestic Disputes  
— **Needs improvement**
- Public Safety and Security  
— **Making progress**
- Personal Health  
— **No new data**

##### **Community Capacity Building**

- Recreation Facilities  
— **No new data**
- Environmental Education  
— **No new data**
- Arts and Heritage-Cultural Development  
— **No new data**

##### **Community Cohesion**

- Local Government Participation  
— **Hard to say**
- Community Concern  
— **Hard to say**



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time. In other cases, it is very hard to say if Guelph is succeeding in its efforts. Finally, in some cases, it is clear that Guelph is not moving forward toward sustainability.

Looking ahead, the way in which the SOSR is produced needs to be re-examined to make it a more effective and efficient tool for community stakeholders. The following are brief recommendations for future editions of the SOSR. The GPSC realizes that some of this work may become part of a future Smart Guelph benchmarking process.

- **Update the Reporting System**—create a common, transparent system to collect data on locally relevant indicators.
- **Review Indicator Meaningfulness**—revisit current and suggested new indicators, ensuring the indicators selected are meaningful in the local context.
- **Develop a Coordinated Approach**—work with data providers (city staff and other stakeholders) to collect data, analyse, and comment on the indicators selected.
- **Focus on Environmental Indicators**—other organizations are conducting indicators work on social and economic sustainability; the GPSC should focus on the environmental indicators, and coordinate with these groups to prepare a citywide SOSR.
- **Promote and Distribute the SOSR (2nd ed.)**—the results of the SOSR should be distributed to the community, and feedback from concerned citizens should be sought.

# Table of Contents

---

|  |          |
|--|----------|
| Acknowledgements.....                        | ii       |
| Executive Summary.....                       | iii      |
| <b>1.0 Introduction.....</b>                 | <b>1</b> |
| 1.1 Background .....                         | 1        |
| 1.2 Organization of this Report.....         | 2        |
| 1.3 Data Sources and Commentary .....        | 3        |
| 1.4 Where to Go for Further Information..... | 3        |

## INDICATORS OF ENVIRONMENTAL SUSTAINABILITY

|  |           |
|--|-----------|
| <b>2.0 Land Use and Development .....</b>              | <b>4</b>  |
| 2.1 Open Space and Natural Corridors.....              | 5         |
| 2.2 Ecological Sensitivity and Habitat Protection..... | 7         |
| 2.3 Land Management.....                               | 8         |
| 2.4 Balanced Development .....                         | 9         |
| <b>3.0 Integrated Transportation.....</b>              | <b>10</b> |
| 3.1 Automobile Travel.....                             | 11        |
| 3.2 Transit Ridership .....                            | 12        |
| <b>4.0 Water Conservation .....</b>                    | <b>13</b> |
| 4.1 Ground Water Quality.....                          | 14        |
| 4.2 Water Consumption .....                            | 15        |
| 4.3 Water Supply Reserve Capacity .....                | 16        |
| 4.4 Impact on Speed River System .....                 | 17        |
| 4.5 Surface Water Quality .....                        | 19        |
| <b>5.0 Energy Conservation .....</b>                   | <b>21</b> |
| 5.1 Energy Consumption.....                            | 22        |
| <b>6.0 Waste and Resource Management .....</b>         | <b>24</b> |
| 6.1 Waste Management and Hazardous Waste .....         | 25        |
| <b>7.0 Outdoor Air Quality.....</b>                    | <b>27</b> |
| 7.1 Ozone and Greenhouse Gas Emissions .....           | 28        |

---

## INDICATORS OF SOCIAL AND ECONOMIC QUALITY OF LIFE

|   |           |
|---|-----------|
| <b>8.0 Employment Trends.....</b>                 | <b>29</b> |
| 8.1 Labour Force in Employment.....               | 30        |
| 8.2 Income Level.....                             | 31        |
| 8.3 Post-secondary Qualifications .....           | 33        |
| <b>9.0 Stable Healthy Families.....</b>           | <b>34</b> |
| 9.1 Children in Care .....                        | 35        |
| 9.2 Public Safety and Security .....              | 37        |
| 9.3 Personal Health .....                         | 38        |
| <b>10.0 Community Capacity Building.....</b>      | <b>39</b> |
| 10.1 Recreation Facilities.....                   | 40        |
| 10.2 Environmental Education .....                | 41        |
| 10.3 Arts and Heritage—Cultural Development.....  | 42        |
| <b>11.0 Community Cohesion .....</b>              | <b>43</b> |
| 11.1 Local Government Participation.....          | 44        |
| 11.2 Community Concern .....                      | 45        |
| <b>12.0 Conclusions and Recommendations .....</b> | <b>46</b> |
| 12.1 Overview.....                                | 46        |
| 12.2 Limitations of the Indicators.....           | 46        |
| 12.3 Recommendations Going Forward .....          | 47        |

## APPENDICES

|  |
|--|
| Appendix A: Indicator Review Process and Indicators for Future Consideration |
| Appendix B: Data Provider Survey   |
| Appendix C: Measures of Progress—Summary of Trends 1998 and 2001             |
| Appendix D: Useful Websites and Other Data Sources                           |
| Appendix E: Population Data  |

# —Section 1.0—

## Introduction

---

### 1.1 Background

The Green Plan, prepared in 1992–1994, was the first step in a strategic planning process to move the City of Guelph toward its vision of environmental sustainability, in harmony with economic and social development. It is a set of environmental challenges, goals and objectives identified by the Guelph community, together with suggestions from the public on how to achieve them, and an implementation process for evaluation and action on those suggestions. The Green Plan helps the Guelph community plan for a better environment, and will help secure the city's future sustainability.

In adopting the Green Plan, city council specified that a State of Sustainability Report (SOSR) be prepared every three years. The Green Plan had recommended an SOSR; the report was to provide a comprehensive examination of the state of the natural systems and environmental features within Guelph.

The first SOSR was produced in 1998. This updated work builds on the original, covering the period 1998 to 2001. The scope of the SOSR covers not only the natural environment, the main focus of the Green Plan, but also the economic and social sustainability aspects of the community. The natural environment is

shaped by economic and social changes and the opposite is also true.

Focus areas of the SOSR are:

- Land Use and Development
- Water Conservation
- Energy Conservation
- Integrated Transportation
- Waste and Resource Management
- Air Pollution (Outdoor)
- Employment Trends
- Stable Healthy Families
- Community Capacity Building
- Community Cohesion

For each focus area, success is measured using a series of indicators. Indicators are key measurements that can provide a quick snapshot of the wellbeing of each focus area. More than one measurement may be used as part of each indicator.

Several workshops were held in late 1996 and early 1997 to select appropriate indicators. City of Guelph staff, volunteers and representatives from other agencies were involved in this process.

In 2001, additional indicators were considered and in some cases included, while the original

indicators were reviewed and in some cases removed. These changes are listed in Appendix A—Indicator Review Process and Indicators for Future Consideration. This process was aided by a survey of all data providers. The survey called on the data providers to comment on the indicator, the availability of relevant data and suggest changes for future editions of the SOSR. The survey is presented in Appendix B.

While indicators provide a way of measuring progress, they are only as reliable as the data used to generate them. In many cases data are incomplete, vague or not applicable. This has been noted in each section where appropriate. In addition, the indicators used in the process may change over time, as noted above. While this may not be ideal, we do not know what sustainability looks like or should be, simply that we need to make progress. Thus the indicators chosen at a given time reflect our

knowledge and understanding at a given time. Results of each indicator are a signal for closer review and not a conclusion.

The information provided by the SOSR provides a starting point for more informed decision making on sustainable development. As the city implements its Official Plan over time, the SOSR should be consulted to aid the process. Additionally, residents, businesses and community groups should consult the SOSR to determine how they can contribute to the progress of making Guelph a more sustainable city.

## 1.2 Organization of this Report

The discussion for each focus area begins with a brief overview that explains the importance of the area, the guiding principles for sustainability (from the first SOSR), and the specific Official Plan and Green Plan goals for the area (if applicable).

### What is Sustainability?

*"... development that meets the needs of the present without compromising the ability of future generations to meet their own needs."*

This is the most widely known and accepted definition of sustainable development. It was developed by the World Commission on Environment and Development (also called the Brundtland Commission) and published in its 1987 landmark report, *Our Common Future*. The Government of Canada recently elaborated on this definition on its website on sustainable development,

*"Sustainable development looks at now and the future. It involves the things taken for granted - such as clean air and a healthy water supply - balanced with a growing society. It is also about leaving enough natural resources, a well-managed economy and a healthy environment for future generations. Sustainable development often means bringing many different people and groups together to find common ground and work out creative solutions. For instance, industries can make money but also avoid pollution. Governments need to promote sustainable development and protect the future of Canada's environment, its natural resources, and the health of Canadians."*

Source: <http://environmentandresources.gc.ca>

Each indicator is then discussed in detail, with specific long-term goals and short-term targets defined where possible. Charts and graphs present the data used to make a judgement on the state of each indicator. Three alternative judgements are used to describe the state of each indicator measure, following a successful model developed for the Region of Hamilton-Wentworth (now the City of Hamilton). These judgements are:

- The Guelph community is **making progress** in relation to the goal and target;
- The Guelph community **needs improvement** **in** its performance;
- It is **hard to say** whether we are moving in a favourable direction.

Limitations of the indicator and suggested actions for citizens, business, and government to take to improve our performance are provided.

Where new data were not available, a short summary of the goals, targets, and limitations are provided. In these instances, judgements on the state of each indicator are not made.

### 1.3 Data Sources and Commentary

As mentioned above, for the 2001 SOSR a review of the previously used indicators was undertaken. The review process began with a call to many sources of information for data and a request to fill out a survey about the data's meaningfulness (see Appendix B).

Where possible, a critical review by the data providers took place to evaluate the draft document before publication. This was possible for all of the environmental indicators, however, for many of the social indicators no review was possible. The commentaries and judgements for the social indicators should be read with this in mind.

It is unfortunate that the timing of this report did not better relate to the release of data from the June 2001 Census. Data from individual cities such as Guelph are not planned to be published until the middle of this year. The fact that some of the indicators presented in this report are based on these census data has been a limiting factor.

A summary of trends in 1998 and 2001 is found in Appendix C. The raw datasets are located in a separate booklet that is housed by the City of Guelph, Environment and Transportation.

### 1.4 Where to Go for Further Information

Data sources are located at the end of each indicator description. A list of helpful websites and other resources is provided in Appendix D.

## Definitions

**Goals:** "...goals are the specific aims that the community wishes to strive towards to achieve its vision for the future...They are used to guide organizations, experts, or professional staff to develop specific programs..."\*

**Targets:** "A measurable commitment to be achieved in a specific time frame." "These targets permit managers to evaluate both the adequacy of actions being taken and the progress made in implementing an Action Plan."\*

**Source (\*):** International Council for Local Environmental Initiatives and the International Development Research Centre. 1996. *The Local Agenda 21 Planning Guide: An Introduction to Sustainable Development Planning*. Toronto, Canada.

**Indicator:** a measure or metric of performance, either qualitative or quantitative. These can be grouped into indicator categories of economic, environmental or social issues of concern to stakeholders (e.g., ground water quality, income level). Indicators provide feedback on the success of policies and programs and create accountability among stakeholders.†

**Source (†):** International Council for Local Environmental Initiatives 1998. *Local Agenda 21 Model Communities Programme: An Action Research Partnership (Volume One—Final Report)*. Toronto, Canada.  
AND  
Global Reporting Initiative. 2002. *Sustainability Reporting Guidelines* ([www.globalreporting.org](http://www.globalreporting.org)).



## —Section 2.0—

# Land Use and Development

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### Overview

With urban development expanding, it is vital that municipalities improve land use management practices and reduce urban sprawl. The community of Guelph should maintain an ongoing commitment to environmentally sound development through an integrated approach to economic and cultural needs, and environmental and social responsibilities.

The Green Plan goals for land use and development are:

- Make the environmental planning process more user-friendly and coordinated effectively amongst all stakeholders
- Promote sustainable growth and responsible management when developing land use plans
- Integrate land uses to sustain a community structure that maximizes environmentally conscientious use and resource efficiency

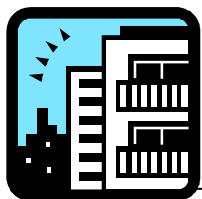
### Guiding Principles

- Natural systems should be protected. At the same time, public education programs should be developed for wildlife conservation and environmental stewardship.

- The presence of native wildlife species usually represents improvements in the habitat features and diversity available in the landscape. The occurrence of exotic species may indicate degradation from a natural condition.
- All residents should share in developing a community that is attractive, pleasing and environmentally sound in some total sense; a community's pride should be based on a commitment to environmental and heritage protection.
- Municipalities should strive to have a balanced tax base among industrial, commercial and residential properties.

The City's Official Plan plays a major role in guiding land use and development. Notable themes in the Official Plan include:

- Linked open space and greenlands system
- Subwatershed planning and assessment
- Requirements for Environmental Impact Studies (EIS)
- Maintenance of endangered and threatened species habitat
- Revitalization of contaminated and vacant properties



## 2.1 Open Space and Natural Corridors

### Description of Indicator

The open space and natural corridor indicator is an attempt to mark the City's progress toward promoting park open space and protecting all areas of natural open space. Two measures are used to define the indicator: natural open space and park open space and facilities. Each measure describes a broad range of land types with some entirely designed for natural habitat protection while others are for active human use or building occupancy. Wards 2 and 6 include areas of undeveloped land which were annexed in the 1990s. These areas have been studied to identify natural lands for protection and monitoring.

#### a. Natural Open Space

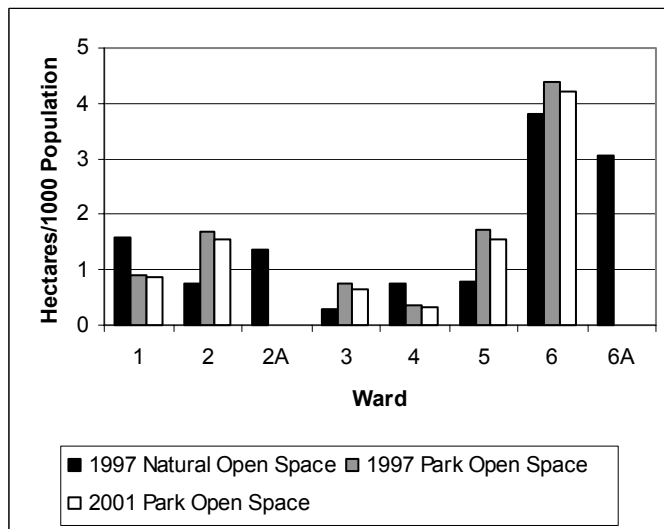
"Natural Open Space" consists of provincially significant wetlands and other natural heritage features including significant forests, rivers and stream corridors, habitat linkages and floodways. The last inventory was completed by the City of Guelph in 1997.

#### b. Park Open Space and Facilities

"Park Open Space and Facilities" data are derived from an inventory of park facilities, plus miscellaneous open spaces such as golf courses, cemeteries and Grand River Conservation Authority land. This database is routinely updated by the City of Guelph.

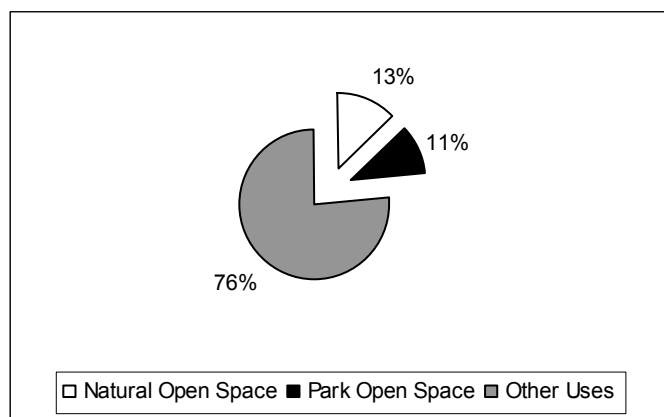
### Long-term Goal

All open space areas, and those areas being considered for development, that can produce natural connections should be protected. All areas should be enhanced to optimize their environmental benefits and, where appropriate, allow access for the community.



### Natural Open Space and Park Open Space and Facilities by Ward

NOTE: No data were available to show natural open space in 2001. "A" denotes annexed land.



### Percent of Land in Open Space, 1997

NOTE: Statistics Canada total land area for Guelph: 1996 - 87.12 sq km and 2001 - 86.66 sq km.



---

## How are We Doing?

### HARD TO SAY

Park open space per capita decreased slightly between 1997 and 2001. An estimate cannot be made for natural open space since it has not been inventoried in recent years. It is not known how defined targets in the Official Plan for neighbourhood, city and regional (parkland) open space are used to measure progress of this indicator. The minimum citywide target rates for neighbourhood and city open space are 1.5 and 1.8 hectares/1000 population, respectively. The minimum regional open space target is 5.5 hectares/1000 population. The City's Recreation, Parks and Cultural Strategic Plan from 1997 suggests that neighbourhoods having between 2 to 4 hectares/1000 population are adequate.

#### Short-term Target

The City's Recreation, Parks and Cultural Strategic Plan states that neighbourhoods having less than 2.0 hectares per 1,000 population of park open space are considered deficient and 2 to 4 hectares per 1,000 population are adequate. There is no specific target for establishing a citywide linked open space concept.

#### Limitations of the Indicator

The park open space measure excludes private open space throughout the city.

There is no historical record of natural habitat before development of the City of Guelph (e.g., ecosystems, community structure and extent). It

is not known if an earlier assessment is available to guide future planning of open space. A specific target is needed for the active creation of a linked system. Stormwater management ponds, bike/walking trails and community naturalization project areas should be considered in the measurement of open space and natural corridors.

The long-term goal should reflect the City's intent to develop an interconnected system of open space and natural corridors.

## How to Improve Performance

### Citizens

- Map all natural areas including the community group naturalization projects.

### Business

- Require developers to link to existing open space and trails, where possible, and make connections between built up areas that have open space.

### Government

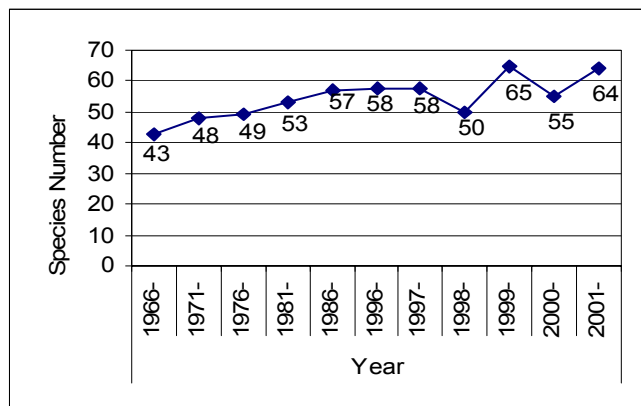
- Complete an ecological inventory on all land types defined as open space or greenlands (develop a strategy for routine data collection).
- Acquire land, integrate vacant lands and consult with the community to complete a linked system that will reduce the isolation of habitat islands.



## 2.2 Ecological Sensitivity and Habitat Protection

### Description of Indicator

Knowledge on the distribution, ecology and number of wild birds underpins the conservation of their habitat. Each year, during a given seven day period at Christmas time, bird watchers count the number of bird species observed within a 12 kilometre (7.5 mile) radius around the south end of Guelph, and report those observations to the Guelph Field Naturalists. Guelph's Christmas Bird Count officially started in 1966 and the first several years show counts from fewer bird watchers than more recent periods. These are the best numbers available of the species measured by experts on a regular basis in or near Guelph. Annual figures have been averaged every five years for the period 1966 to 1986.



Average Number of Bird Species in Christmas Counts

### Long-term Goal

Increase the knowledge of and improve the quality of natural systems in and near Guelph.

### Short-term Target

Maintain the distribution and number of bird species.

### Limitations of the Indicator

This indicator should be replaced in the next edition. There are many variables that influence

### How are We Doing?

#### HARD TO SAY

The data should be interpreted with caution because a change does not identify individual species that are considered to be significant, in terms of rarity, ecological sensitivity or a need for habitat protection. Indicator species such as Ruffed Grouse or Pileated Woodpecker are sensitive to development. Their counts could provide a more meaningful assessment on the ecological status of an area.

the data such as weather during the count, skill and number of observers. Birds are also greatly influenced by regional and global factors independent of what's occurring in Guelph. An emphasis should be put on measuring habitat change rather than wildlife occurrence. Present subwatershed monitoring, in areas such as Torrance Creek, should be considered to identify a range of potential indicators. Possible measures are: wildlife species richness and diversity, indicator species counts and habitat conditions of core and non-core greenlands.

### How to Improve Performance

#### Citizens

- Develop a protocol for community-based monitoring.
- Plant native species and allow larger private properties to naturalize.

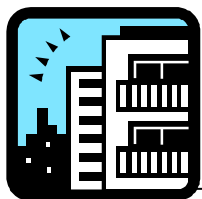
#### Business

- Promote planting projects with neighbouring businesses to link open space.
- Initiate projects that incorporate plant diversity rather than just tree planting.

#### Government

- Complete subwatershed plans and monitoring for all areas within the city.
- Create a database of subwatershed information that the public can access.

Data Source: Federation of Ontario Naturalists, Guelph Office

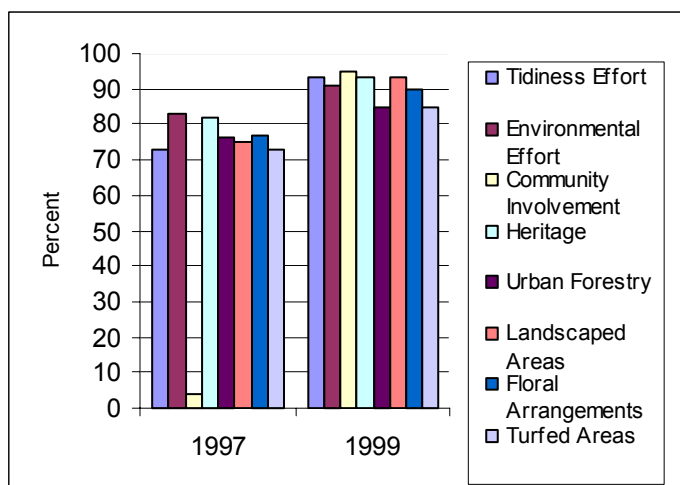


## 2.3 Land Management

### Description of Indicator

Each year many Canadian cities compete in the Community in Blooms Competition.

Communities of the same size are assessed in terms of the quality of protection and enhancement of the natural and heritage environment. Communities that are registered are visited by two independent judges who spend two days studying the community and interviewing residents and City staff. There are eight criteria including tidiness effort, environmental effort, community involvement, heritage, urban forestry, landscaped area, floral arrangements and turf areas. Guelph has been competing in the competition since 1996.



**Guelph's Results—Communities in Bloom Competitions**

### Long-term Goal

Guelph should continue to maintain high levels of attractiveness in the entire city system of land, buildings, heritage and public facilities and to instill pride in its citizenry and responsibility for this shared environment.

### Short-term Target

To maintain the level of success already attained in the results from 1999 (90% overall effort in management planning, maintenance,

Data Source: City of Guelph, Recreation and Parks

### How are We Doing?

#### MAKING PROGRESS

Guelph is increasing its effort. All categories (see graph) rose and community involvement increased from 1997 to 1999. However, it is not known what factors contributed to this result and, as a result, how to ensure that it is repeated in the future.

improvement and innovation) and increase the City's participation in other civic programmes to conserve and improve the natural and built environments.

### Limitations of the Indicator

It will be challenging for the city to maintain an almost "perfect" performance. At present a small number of independent experts judge the competition. Nevertheless, the indicator is based on defined criteria, collected by the City on a regular basis and shared with other participating communities. Two other measures related to land management are recommended for inclusion in the next edition, pesticide reduction and brownfields redevelopment.

### How to Improve Performance

Communities in Bloom criteria could become a basis for promoting and evaluating citizen and business "best practices."

#### Citizens

- Increase participation in the competition.
- Join the Guelph Boulevard Club.

#### Business

- Encourage ecologically based lawn maintenance (e.g., chemical free).

#### Government

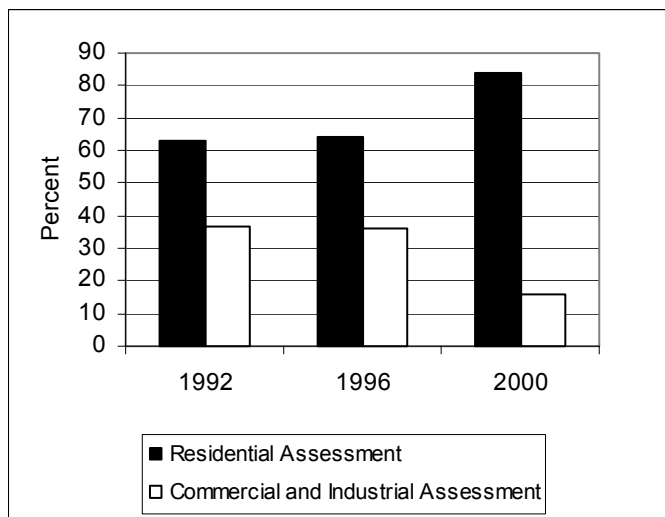
- Promote and increase reliance on pollution prevention strategies for property maintenance.



## 2.4 Balanced Development

### Description of Indicator

The indicator for balanced development measures the relative size of the property assessment for taxation in the residential category and the assessment of industrial and commercial properties. The indicator reflects provincial parameters used to judge whether the local economic structure is appropriate to provide municipal services. In 2001 taxation year, residential properties represented 76% of the values. Residential values have increased while commercial and industrial values have declined from a previous assessment based in 1996.



**Relative Size of Property Assessment, Guelph  
(Residential versus Commercial/Industrial)**

### Long-term Goal

The long-term goal is to maintain a balance in the assessments.

### Short-term Target

A provincial balance of 60:40 was found to generate sufficient revenues and meet the

### How are We Doing?

#### NEEDS IMPROVEMENT

The results show a significant movement away from the previous balance. The results deviate from the current provincial ratio. There has been an increase in residential taxes since 1996 due partly to changing responsibilities in the municipal government. Recent increases in residential construction may be reducing the City's ability to provide residential facilities and services and fund the infrastructure needed to service land for industry.

needs of all sectors for municipally supported infrastructure and services. In 2001, the provincial ratio changed to approximately 75:25.

### Limitations of the Indicator

This indicator and the provincial ratio standard are fundamental guidelines but they may need revision in Guelph because of reduced grants from the province and off-loading of responsibilities to the municipalities.

### How to Improve Performance

#### Citizens

- Get involved in the planning process.

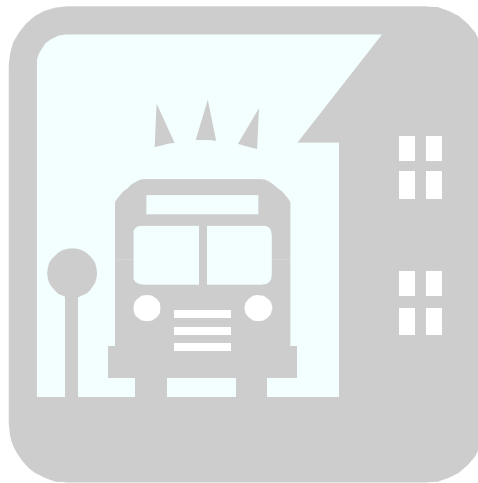
#### Business

- Promote and actively participate in infill and redevelopment. Use vacant buildings to improve housing and commercial ventures in existing urban areas.

#### Government

- Develop strategies to implement financial incentives for high-density units in the downtown area.
- Discourage urban sprawl and preserve outlying agricultural land.
- Locally, the City should attempt to stay at or improve on the provincial ratio set at any given time.

Data Source: City of Guelph, Taxation and Revenue



## — Section 3.0 —

# Integrated Transportation

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### Overview

The Green Plan identifies transportation as a one of its five main areas of concern. The transportation challenge, it states, is for “the Guelph community [to] redirect itself towards a transportation policy that has a balance between the car, bicycle, pedestrian and public transit (bus and rail).” The Green Plan goals are:

- Reduce environmental impacts from transportation (air emissions, noise, deaths, etc.)
- Increase accessibility of alternative transportation
- Integrate public input into planning
- Improve the integration of planning efforts between city, provincial and federal departments

An increase in bicycling, walking and public transit will depend on a number of factors, including urban form, land use and

development, gasoline and car prices. Transit ridership is also dependent on price and convenience. Community education on the problems associated with excessive car use, such as polluting emissions and urban sprawl, will be needed to help move Guelph away from its dependence on automobiles.

### Guiding Principles

- There should be less dependence on the automobile for most frequent journeys (work, shopping, etc.) to strengthen environmental sustainability and quality of life.

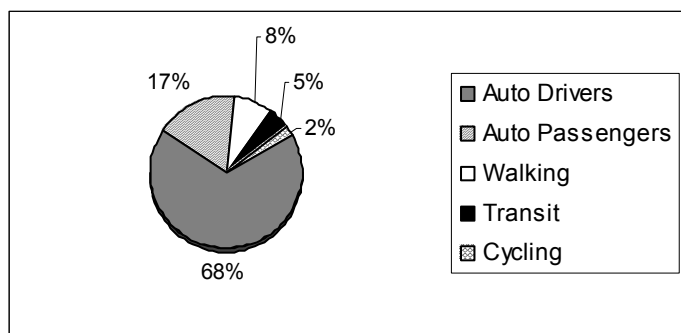
The Official Plan for Guelph sets a target of having a modal split at least 10% of average daily trips in the city. (Modal split looks at the proportion of auto and bus trips. Modal share looks at all forms transportation.)



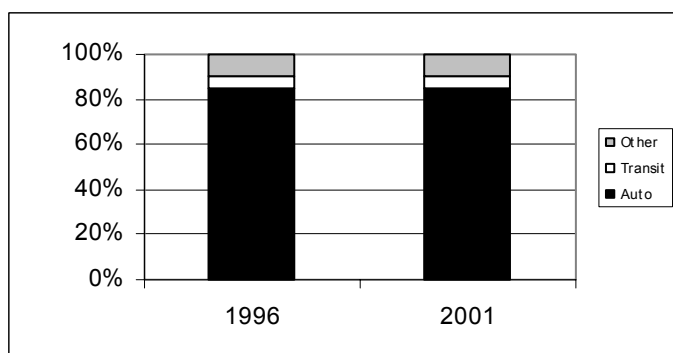
## 3.1 Automobile Travel

### Description of Indicator

The number of trips by automobile is an important transportation indicator as the more travel that is by automobile, the larger the consumption of gasoline and the emission of pollutants. Scarce land and financial resources are used to construct and maintain roads, reducing natural lands and diverting funds from other activities. The measure for reliance on automobiles for travel is the proportion of trips made by residents by automobile and by other modes as a percentage of all journeys—the “Modal Share.”



Modal Share, Guelph 2001 (all day trips)



Modal Share Comparison, Guelph 1996 and 2001

### Long-term Goal

Significantly reduce the use of automobiles for frequent journeys, including daily commuting to and from work.

### How are We Doing?

#### NEEDS IMPROVEMENT

The number of daily trips by automobile—either as a driver or a passenger—remained at a constant 85% in both the 1996 and 2001 studies. Transit usage also remained constant at 5% of the modal share, half of the Official Plan objective.

It is positive that there was not an increase in automobile use in the studies, since population increased over the period. Much of this population is moving into suburban communities; communities that by their design often lead to increasing reliance on cars for reaching amenities. A significant portion of Guelph's growing population commutes to work outside the city, which often leads to frequent and lengthy trips by car.

### Short-term Target

Continue to develop Guelph in a way that allows the city to reach the Official Plan transportation objective of a transit modal split of 10%. Encourage walking and cycling as alternatives to driving short distances.

### How to Improve Performance

#### Citizens

- When possible, walk or cycle to amenities, leaving the car at home for short trips.
- Consider taking public transit or carpool to work rather than driving.

#### Business

- Encourage employees to walk, cycle, or take public transit to work. Make bicycle racks and change facilities available for employees that do walk or cycle to work.
- Participate in the Commuter Challenge each year.

#### Government

- Continue to encourage neighbourhood development that reduces the distances to schools, work and amenities so that residents can walk, cycle, or take the bus.

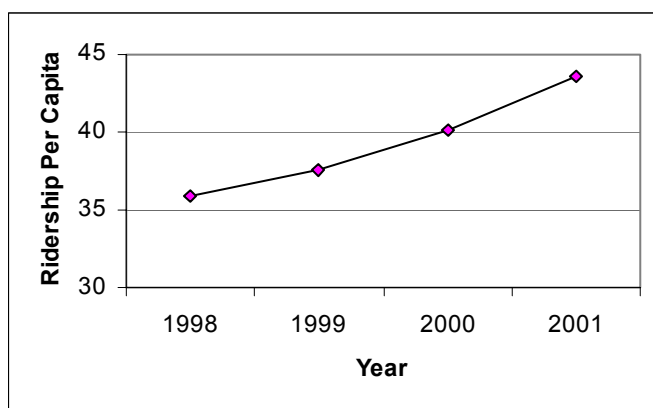
Data Source: 2001: City of Guelph Environment and Transportation (based on the 2001 Transportation Tomorrow Survey); 1996: 1998 SOSR



## 3.2 Transit Ridership

### Description of Indicator

Transit ridership per capita is a provincial benchmark used to measure transit use in the community. This measure can provide insight to the existence of an integrated sustainable transportation system. Increased use of public transit can reduce automobile traffic and the associated emissions that cause smog, acid rain, and climate change. Reduce automobile use through increasing the use of public transit also makes more efficient use of road systems, which are expensive to maintain and expand.



### Transit Ridership Per Capita, Guelph

*NOTE: The University of Guelph represents approximately 35 to 40% of Guelph Transit's total ridership. During the summer semester (May to August) ridership is substantially lower than the rest of the year.*

### Long-term Goal

The Guelph community must redirect itself towards a transportation policy that has a balance between the car, bicycle, pedestrian and public transit (bus and rail).

### How are We Doing?

#### MAKING PROGRESS

Ridership on Guelph Transit per capita has continued to increase since the late 1990s. Sunday service and extended hours of operation have played a significant role in this increase, as well as the continued bus pass agreement with the University of Guelph.

### Short-term Target

The Official Plan for Guelph sets a target for transit to attain a modal share of at least 10% of average daily trips in the city by the year 2011. To achieve this goal there must be a 100% increase in transit ridership in the community.

### Limitations of the Indicator

Transit ridership per capita is a provincial benchmark and considered to be an accurate measure of transit use. However, the large number of university students using Guelph Transit skews the data, and as such the indicator may not reflect the true ridership of the average Guelph citizen. Another indicator, in addition to transit ridership per capita, should be considered.

### How to Improve Performance

#### Citizens

- Take the bus when possible.

#### Business

- Large employers can provide incentives for employees to take transit (through cost sharing or removing hidden subsidies for parking, etc.).

#### Government

- Continue to improve service (for example, through increased frequency and improved route planning).
- Continue to encourage citizens to take the bus.

Data Source: City of Guelph, Transit



## — Section 4.0 —

# Water Conservation

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### Overview

Guelph's municipal water supply is based on groundwater. Water is drawn from several local aquifers (geological formations below the surface that can provide substantial quantities of water when tapped by a well). The city is fortunate to have both the Speed and Eramosa Rivers flow through it, providing animal habitat, recreation and aesthetic benefits to residents.

Water is critical to our economic, social and environmental wellbeing, and as such is a key area of concern in the Green Plan. The Green Plan sets out goals to:

- Protect, preserve and conserve water to ensure a sustainable resource
- Protect and enhance water quality

Groundwater protection and residential and industrial water consumption are key considerations if we are to meet these goals. Limiting and controlling what we put into our surface waters—the Speed River system—is also key to meeting these goals. Increasing population and economic growth in and around Guelph must be balanced with these elements to maintain the city's water quality and quantity.

### Guiding Principles

- There is a limit to how much water can be pumped out of the ground (aquifer) at any given time.
- Drawing water from outside sources (aquifers outside of Guelph or pipelines to the Great Lakes) will mean considerable financial and environmental costs.
- Guelph residents should not be exposed to unsafe water supplies.
- Guelph activities should not have damaging effects on the water resources shared with other communities.

Guelph's Official Plan sets out several objectives related to water use and protection. The plan states we are "to ensure groundwater resources, on which Guelph's water supply is based and which sustain the area's natural environment, are respected, protected and conserved." This objective, in part, is to be accomplished in consultation with the province, adjacent municipalities, the Grand River Conservation Authority, and the Guelph community.

As well, the plan sets out a number of objectives related to the protection of the features and ecological functions of Guelph's natural environment.

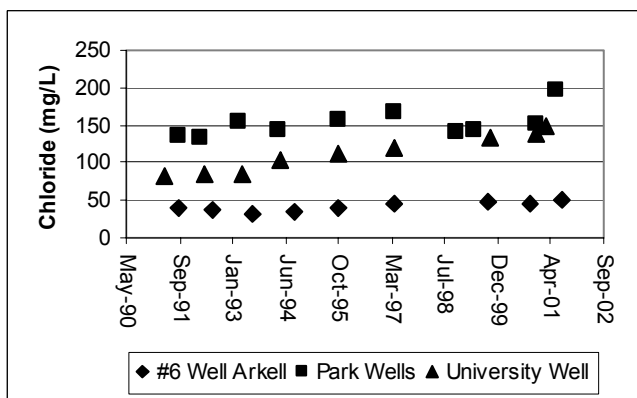




## 4.1 Ground Water Quality

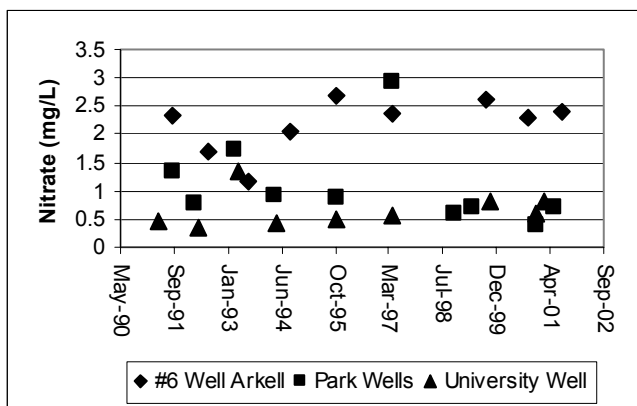
### Description of Indicator

Guelph draws its water from 23 wells throughout the city and nearby, from the Arkell Springs Grounds. Three wells were selected to represent the general quality of Guelph's groundwater resources: the Park Well in the north-east; the University Well in the south-west; and Well 6 in Arkell Spring Grounds in the south-east.



Chloride levels in groundwater.

The provincial objective is 250 mg/L.



Nitrate levels in groundwater.

The provincial objective is 10 mg/L.

There were **NO E.coli colonies** reported in these three wells in Guelph's groundwater during the period May-91 to Aug-01. E. Coli is measured in number of colonies/100 mL, with a provincial objective of 0 colonies per sample.

### How are We Doing?

#### MAKING PROGRESS

The city produces high quality drinking water that consistently meets or exceeds all health related drinking water standards. The comparison of these three wells illustrates the close interaction between land use activities and the quality of city well water.

Three measures were selected to demonstrate important aspects of the ground water quality. They show the general quality of the water as it is drawn into the Guelph water system prior to treatment and distribution to residents and illustrate the effects everyone in Guelph has had over many years on the quality of our tap water.

#### Long-term Goal

Maintain our water resource in a condition of high quality, with no health dangers to our residents and to all water users.

#### Short-term Target

Continue careful watch over the water supplies, and ensure that all health regulations and guidelines are met. The city's targets are no *E. coli* and safe nitrate and chloride levels in our tap water.

#### Limitations of the Indicator

These data are limited since they are for select wells and dates. The complex system of wells makes it difficult to show the quality of the entire aquifer in a few tables.\*

#### How to Improve Performance

We can all play a part in improving the quality of Guelph drinking water:

- Prudently use fertilizers.
- Limit use of salt to deice roads and walkways.

Data Source: City of Guelph, Water

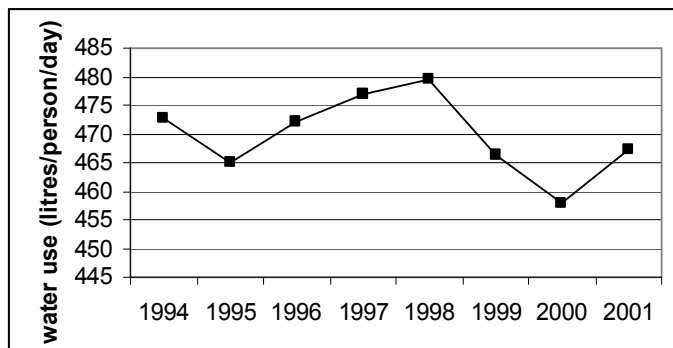
\* For more information on Guelph tap water, visit the city web site at [www.city.guelph.on.ca](http://www.city.guelph.on.ca) to review the quarterly reports prepared by Guelph waterworks for the MOE and Guelph residents.



## 4.2 Water Consumption

### Description of Indicator

This indicator measures water consumption for residential, commercial and heavy industrial metered accounts.



Water Consumption, All Uses

### Long-term Goal

Guelph should stay within the sustainable ability of our aquifers to supply high quality water.

### Short-term Target

Reduce the per capita rates of consumption by reducing water wastage and encouraging a variety of conservation measures.

### Limitations of the Indicator

Figures are given for metered water consumption only, not total consumption. Metered account volumes were chosen because they measure actual consumption and leave out leaks, fire suppression and other miscellaneous unmetered uses. The data do not account for water users which draw water directly from the aquifers with their own equipment, such as the University does for part of its water supply. The data are not refined enough to show variations in water consumption throughout each year, and thus citizen concerns like summer watering restrictions are not shown.

Data Source: City of Guelph, Works

### How are We Doing?

#### MAKING PROGRESS

There appears to be some decline in water use per capita over the last few years. However, the data are hard to interpret for any noted trend because year-to-year variations are expected depending on levels of economic activity and the overall weather.

### How to Improve Performance

#### Citizens

- Use water conservation kits to reduce kitchen and bathroom water consumption through low flow showerheads, aerators to increase water pressure, and toilet leak detectors.
- Replace 20L/flush toilets with new low-flow (6L/flush or less) toilets.
- Recycle rain water by using a rain barrel
- Reduce lawn and yard watering in the summer months.

#### Business

- Improve water efficiency in operations where possible.

#### Government

- Educate the public on wise use of water, especially in terms of lawn watering.
- Continue with actions to reduce unmetered unaccounted for water losses to improve efficiency of water supply as an example to all water users.
- Continue to work with large industrial water consumers to reduce their water use.



## 4.3 Water Supply Reserve Capacity

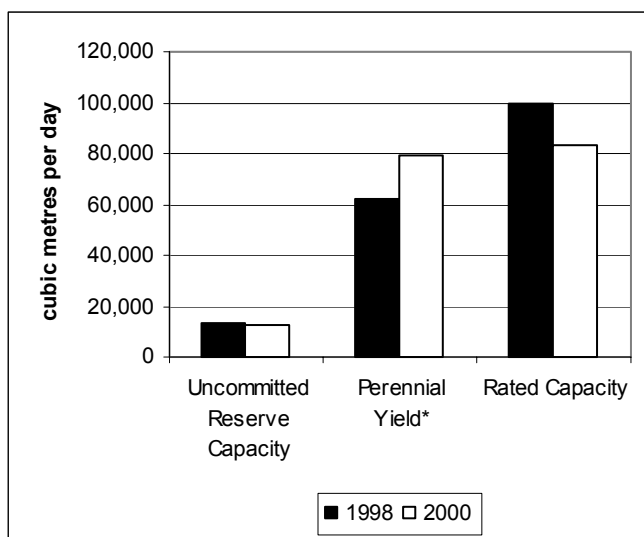
### Description of Indicator

The Ministry of Environment requires that the City estimate the uncommitted reserve capacity to draw water from existing water resources. The existing estimate of capacity must be set against the foreseeable or planned increases in population and economic activity.

### How are We Doing?

#### HARD TO SAY

Our uncommitted reserve capacity has decreased since 1996, however perennial yield has increased as has the city's overall water conservation measures.



### Water Supply Reserve Capacity

**NOTE:** The perennial yield given for 2000 is an average (the reported data for perennial yield was 75,260 to 82,760 cubic metres per day).

### Long-term Goal

Keep water use within the limits of the capacity of the aquifers.

### Short-term Target

Maintain adequate reserves to ensure that future economic and population growth can be accommodated.

### Limitations of the Indicator

Estimates of reserved capacity are just that, estimates, based on a series of assumptions. These assumptions may or may not be adequate, and may not properly address the long-term population and economic growth of the city.

### How to Improve Performance

#### Citizens

- Wisely use water through such activities as:
  - installing low-flow fixtures (toilets, shower heads, etc.)
  - using rain barrels for watering outside gardens
  - reducing lawn watering.

#### Business

- Conduct a water use audit to identify water conservation opportunities.
- Install low-flow fixtures where appropriate.

#### Government

- Continue to create and support water use reduction programs, including peak/summer water use limits and rain barrel sales.

Data Source: City of Guelph, Water

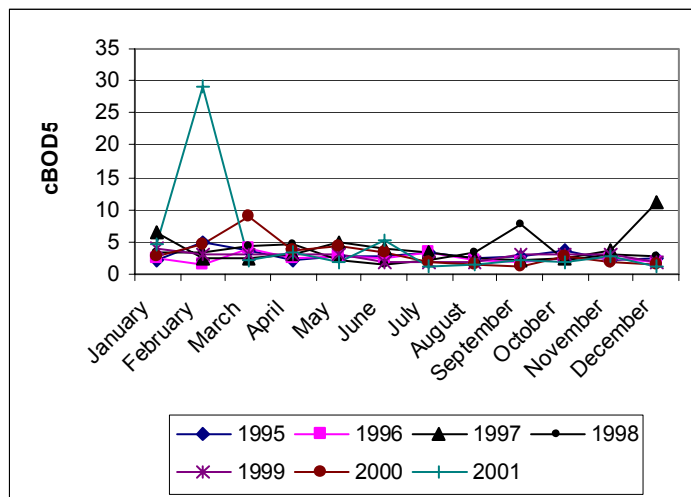


## 4.4 Impact on Speed River System

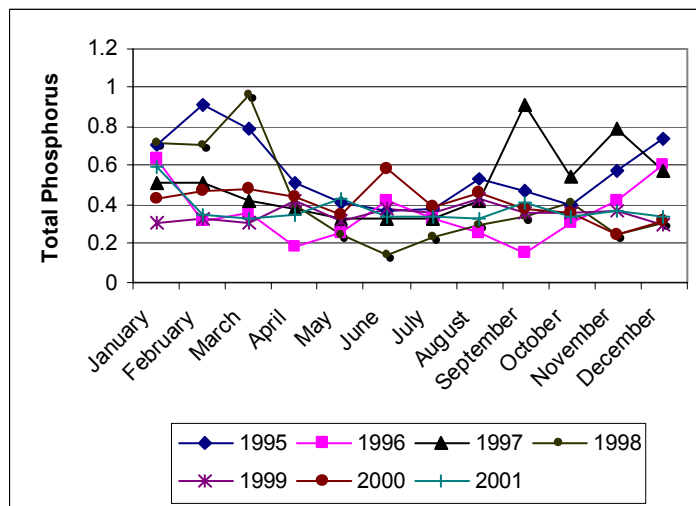
### Description of Indicator

Although the city impacts on the local river system in a variety of ways, certainly the potentially largest and most direct impact is through the discharge of treated wastewater effluent into the Speed River. There are two measures of the city's impact on the Speed River system. The first relates to the quality of effluent discharge from the wastewater treatment plant, which is described by two parameters. cBOD5 is the total five-day carbonaceous biochemical oxygen demand which is a measure of the amount of oxygen required to stabilize a waste biologically. TP is the total phosphorus concentration in the treated effluent discharge which is a measure of nutrient or fertilizer value.

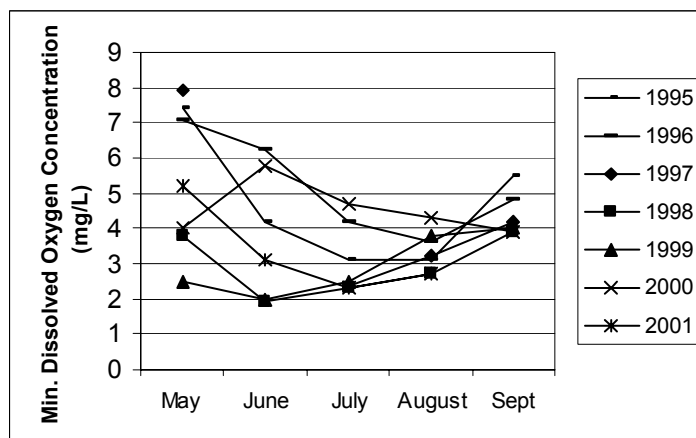
The second measure, minimum dissolved oxygen, is an important measure of the oxygen available in the water for plant and animal life. The Provincial Water Quality Objective for the protection of warm water aquatic species is 4 mg/L at temperatures above 20°C. The dissolved oxygen concentration in the Speed River is measured continuously at a location



cBOD5 Monthly Average Concentrations (mg/L)



Total Phosphorus Monthly Average Concentrations (mg/L).



Minimum Dissolved Oxygen Content (mg/L) During the Month  
(In cases where the provincial objective have not been met, the highest percentage violation was 13 percent.)

NOTES: Data were provided from 1988 to 2001. 1995 to present was shown above for clarity.

approximately 7 km downstream from the Guelph wastewater treatment plant.

The table that follows indicates the wastewater treatment plant effluent quality non-compliance limits associated with the facilities Certificate of Approval issued by the MOE. These limits

came into effect August 2002 following the completion of the Stage 1 Expansion of the wastewater treatment plant.

| MOE Certificate of Approval Non-Compliance Limit |           |                                       |
|--|-----------|---------------------------------------|
| Winter (Nov.1 to Mar. 31)                        |           |                                       |
| Maximum Monthly Average Concentration            |           | Maximum Monthly Average Daily Loading |
| cBOD <sub>5</sub>                                | 7.4 mg/l  | 473.6 kg/day                          |
| Total Phosphorus                                 | 0.7 mg/l  | 44.8 kg/day                           |
| Summer (Apr.1 to Oct. 31)                        |           |                                       |
| TOD*   | 22 mg/l   | 1,408 kg/day                          |
| Total Phosphorus                                 | 0.38 mg/l | 24.5 kg/day                           |

\*TOD Total Oxygen Demand is a calculated value to determine the total demand of both cBOD5 carbonaceous oxygen demand and NOD nitrogenous oxygen demand

#### Long-term Goal

To minimize the impact on those downstream from Guelph and maintain a level of water quality above existing standards.

#### Short-term Target

Meet all legislated requirements and guidelines for wastewater effluent discharge and undertake watershed quality improvements where they have been shown to be desirable.

#### Limitations of the Indicators

The measures of wastewater treatment effluent (cBOD5 and TP) are two of several that could have been selected. The data are high quality,

#### How are We Doing?

##### MAKING PROGRESS

With a few exceptions, good quality effluent continues to be achieved which meets MOE (Certificate of Approval) compliance limits.

measured by the city and also by a CAEAL accredited independent laboratory. Other measures such as total suspended solids and ammonia concentrations might be examined in the future to get a fuller picture of our interactions with the Speed River ecosystem.

Dissolved oxygen is measured on a continual basis by the Grand River Conservation Authority at a water quality monitoring station located on the Speed River at County Road 32. There are many natural and human interactions which can dramatically affect the dissolved concentration and other water quality parameters in the river. The level of dissolved oxygen varies greatly with the season of the year, temperature of the air and water, time of day, and other events upstream.

#### How to Improve Performance

##### Citizens

- Choose cleaning products that do not contain phosphorus.

##### Business

- Carefully choose products (cleaning and other) that will ultimately end up in the water system.

##### Government (Local)

- Investigate the causes and prevent further exceedences of phosphorus limits.

Data Source: City of Guelph Wastewater Services, Grand River Conservation Authority

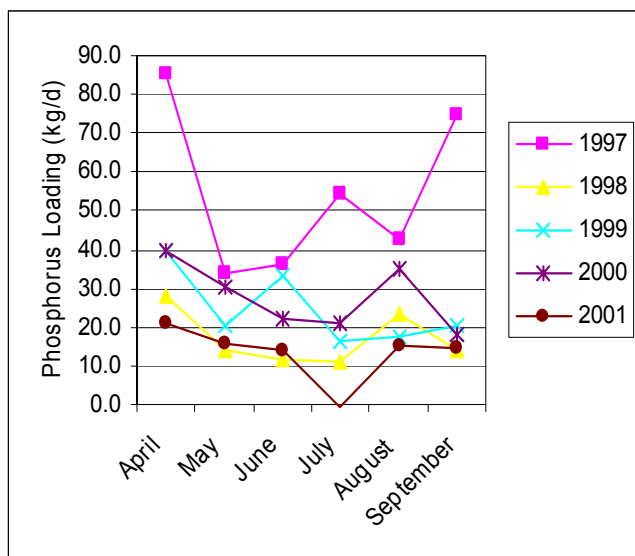


## 4.5 Surface Water Quality

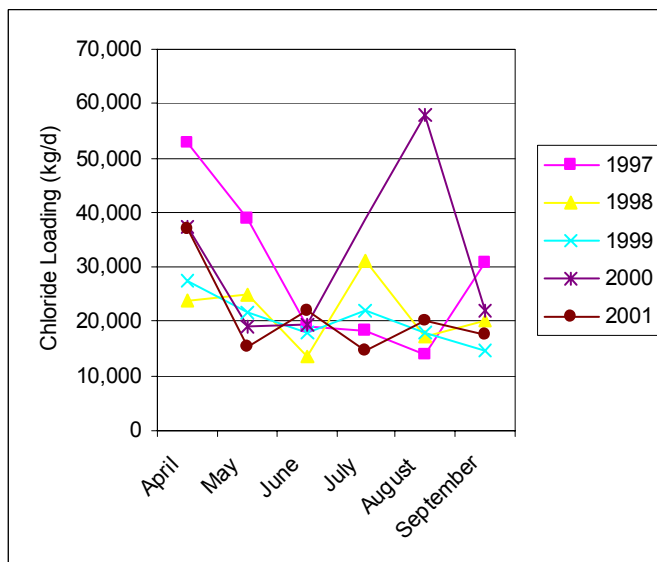
### Description of Indicator

Contaminants in the Speed River come from a number of sources, including the municipal sewage treatment plant, industry, agriculture and residential sources, as well as upstream sources that flow into the city. Phosphorus is one of a number of pollutants discharged by these sources. Phosphorus causes excess growth of algae and thus a lack of water clarity, making it difficult for plants and fish to survive. Salinity, an indicator of the amount of road salt transported by runoff to area wetlands and rivers, has recently been listed as a toxic substance by Environment Canada. Chloride concentration was selected as the indicator of road salt.

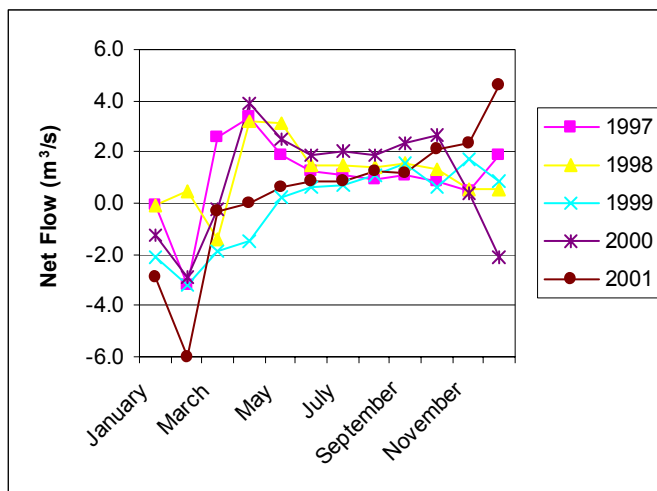
The mass balances for water in the Speed River provide a picture of the amount of water the city draws (or adds) to the river system via stormwater runoff, wastewater treatment plant discharge, etc.



Total Loading of Phosphorus (kg/day)



Salinity – Net Chloride Loading (kg/day)



Water Balance in Speed River

### Long-term Goal

Identify and reduce chemicals that negatively affect community and ecosystem health and stay within the sustainable ability to supply high quality water to the Speed River.

---

**Short-term Target**

Reduce phosphorus and salt loading.

**Limitations of the Indicator**

The phosphorus and chloride concentrations are only measured 8 times per year, approximately monthly during the ice-free period. Completed data were not available for phosphorus in the winter months, and so only the summer months could be compared. The loadings of phosphorus and chloride should be considered rough estimates due to the limited amount of data used.

Salinity can be examined using several different indicators: total dissolved solids, sodium concentration, chloride concentration and/or conductivity. Chloride was used in this edition, but other measures may prove better.

**How to Improve Performance***Citizens*

- Practice responsible fertilizer use—do not overuse commercial fertilizer, since it can contain high levels of nitrogen and phosphorus that make its way into runoff into streams and the sewer system.

**How are We Doing?****NEEDS IMPROVEMENT**

The indicators would suggest some improvements and some areas that need improvement. The city is definitely having an affect on the Speed River: phosphorus and chloride levels are higher leaving the city than entering it. The water balance is typically negative in January and February, which may be a result of water extraction by the City of Guelph.

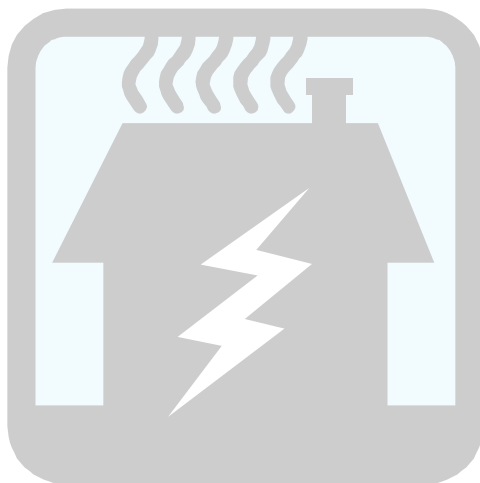
*Business (and Agriculture)*

- Use Best Management Practices (BMP) for the application of fertilizers (e.g., apply only as much as required, leave buffer strips between field and water course, ensure proper storage for manure, etc.).

*Government*

- Continue to look for alternatives to road salt, reduce loading of phosphorus from wastewater treatment plant.

Data Source: Grand River Conservation Authority



## —Section 5.0—

# Energy Conservation

---

### Overview

The cost of natural gas has fluctuated dramatically over the last few years for all sectors. This has caused many organizations to reconsider their main energy sources, leading to two diametrically opposed solutions:

- ONE—(re)investing in cheaper, less environmentally friendly sources of energy —OR—
- TWO—investing in systems independent of commercial providers, such as co-generation. (Co-generation is essentially generating two forms of useable energy from a single process, such as reusing excess steam generated by electric power as heat. Natural gas cogeneration units are considered an efficient and environmentally preferable technology in comparison to more common power sources such as coal.) Additionally, many consumers have switched from older oil or electricity based heating and cooling systems to natural gas based systems.

The energy indicators and the goals in the Green Plan are:

- Residential energy use per capita—10% reduction by 2001
- Commercial and institutional energy use per square foot—10% reduction by 2001
- Industrial energy use per unit produced—8% reduction by 2001

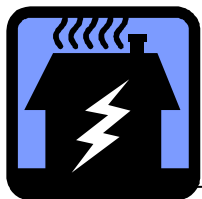
### Guiding Principles

- Guelph residents should not be exposed to unsafe air quality.
- Guelph activities should minimize contribution to global environmental issues such as climate change and non-renewable/recyclable resource depletion.

The Official Plan provides important objectives related to energy consumption. Notable themes include:

- Development of an energy efficient pattern and mix of land use
- Use of energy efficient building techniques
- Upgrading/retrofitting of existing buildings and facilities



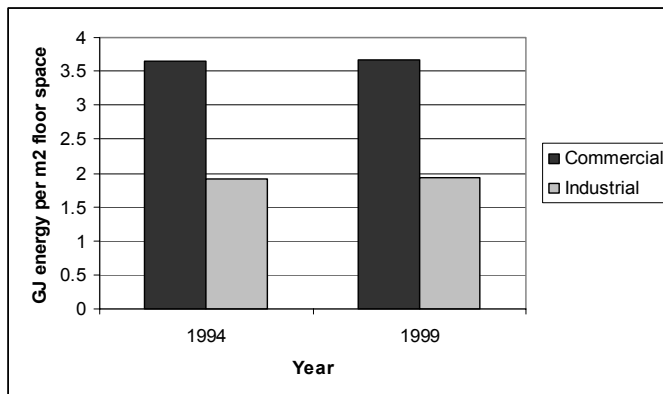


## 5.1 Energy Consumption

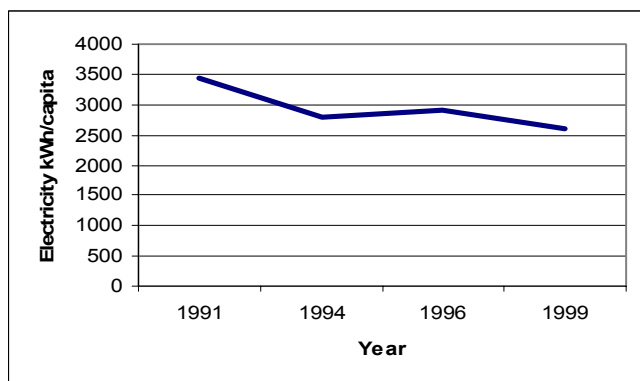
### Description of Indicator

Three measures were selected to demonstrate important characteristics of the energy consumption in Guelph: residential, commercial and industrial consumption in kilowatt-hour (kWh) per capita (residential) and kWh per square metre (m<sup>2</sup>) of floor space (commercial and industrial).

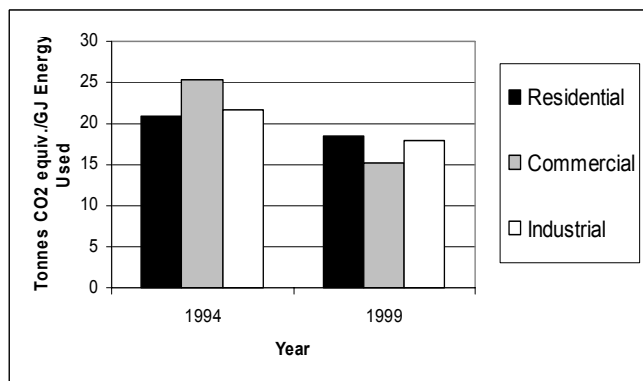
NOTE: Only two years of data were available for three of the metrics at the time of analysis. The City is now gathering this data on a regular basis.



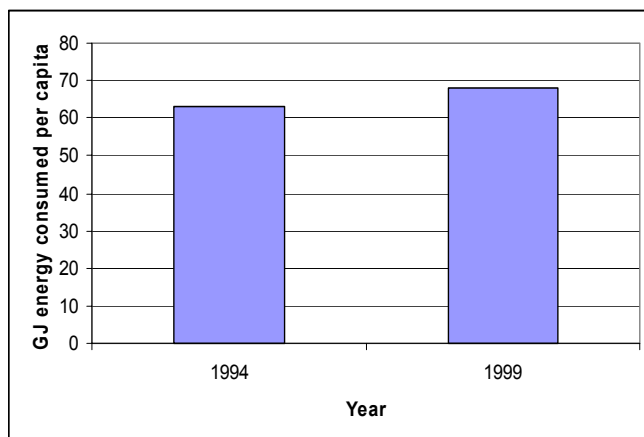
**Commercial & Industrial Energy Use per m<sup>2</sup> floor space**



**Residential Electricity Use per Capita**



**Tonnes of CO<sub>2</sub> Equivalent Emitted per GJ Energy Consumed by Sector**



**Gigajoule (GJ) Residential Energy Consumed Per Capita**

### Long-term Goal

To move toward being a sustainable energy-consuming city.

### Short-term Target

Achieve the energy consumption reduction goals laid out in the Green Plan (see overview text).

### Limitations of the Indicator

In the past, the focus when measuring energy consumption has been on kWh of electricity consumed per capita or kWh per m<sup>2</sup> floor space. Here, that analysis has been broadened to include other sources of energy, such as heating

---

## How are We Doing?

### NEEDS IMPROVEMENT

While residential electricity consumption has decreased, the total energy consumed per capita has increased. Among other things, the former may be a result of a shift to forced air heating in homes from electrical heating. Energy consumption per m<sup>2</sup> for both commercial and industrial sectors has also increased, although minimally. However, the energy sources consumed have become cleaner.

oil, natural gas, propane, diesel and gasoline; data the City is now collecting as a result of its commitment to reduce greenhouse gas emissions.

The analysis was broadened for several reasons. One is that several residents and businesses have switched from heating oil or electrical heating systems to natural gas. This consumption would not be captured when simply measuring electricity. Thus this measure provides a more comprehensive picture of energy use. Additionally, the analysis was broadened to utilize a CO<sub>2</sub>/GJ indicator. This provides an indication of the environmental impact per GJ of energy consumed.

For example, if the GJ of energy per capita remained the same, yet the energy sources consumed became cleaner energy sources, such as hydro, wind or natural gas, this improvement would not be apparent using a traditional metric. However, when energy consumption is analyzed utilizing CO<sub>2</sub> equivalent (a measure of greenhouse gas intensity which includes air emissions that contribute to climate change such as carbon dioxide, carbon monoxide, methane and sulphur dioxide, developed by the Intergovernmental Panel on Climate Change) it is easier to understand the environmental impact of energy consumption.

### How to Improve Performance

#### *Citizens*

- Purchase more energy efficient appliances, make homes more efficient, reduce heating in winter and air conditioning in summer.
- Participate in the Energuide program.

#### *Business*

- Invest in eco-efficiency initiatives and cleaner sources of energy, such as natural gas co-generation or wind power.

#### *Government*

- Make greener sources of energy available to consumers and businesses.
- Educate home owners on how to use less energy.

Data Sources: Guelph Hydro, Union Gas, City of Guelph Environment and Transportation



## — Section 6.0 —

# Waste and Resource Management

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### Overview

Reducing the amount of waste a city generates is paramount to ensuring overall progress in both environmental and economic sustainability. While the city must reduce the amount of waste sent to landfill, we must also ensure that we consume less overall as a society. Not only will this lead to lower waste management costs, but it will reduce the amount of disposable income residents of Guelph spend on precious resources that are ultimately disposed. Essentially, Guelph must decrease its dependence on landfill space over time and must continue to divert materials from landfill to be recycled, composted or reused where feasible.

### Guiding Principles

- Guelph needs to decrease its dependence on scarce landfill space over time.
- Materials with economic value should be diverted from landfill to be composted, recycled or reused where feasible.

Key objectives in the City of Guelph Official Plan include providing adequate solid waste management facilities and showing environmental leadership to minimize waste generation through the 3R's – reduce, reuse, recycle.

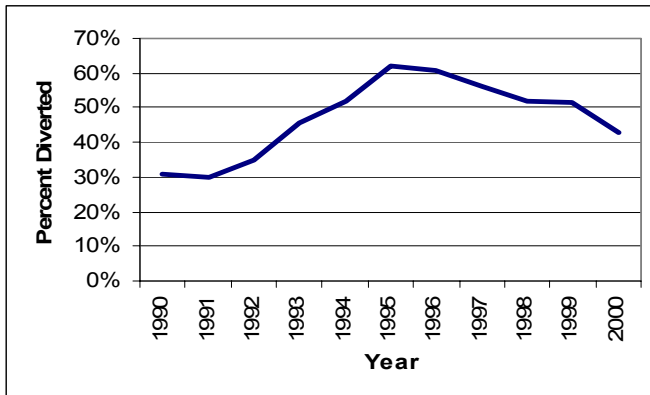


## 6.1 Waste Management and Hazardous Waste

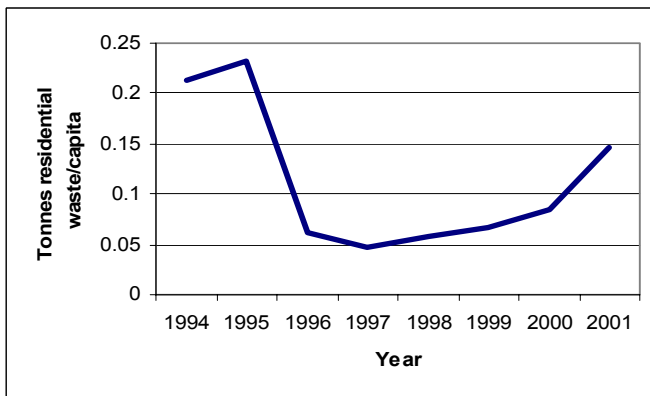
### Description of Indicator

There are four indicators chosen to characterize waste management and resource use in Guelph. These are:

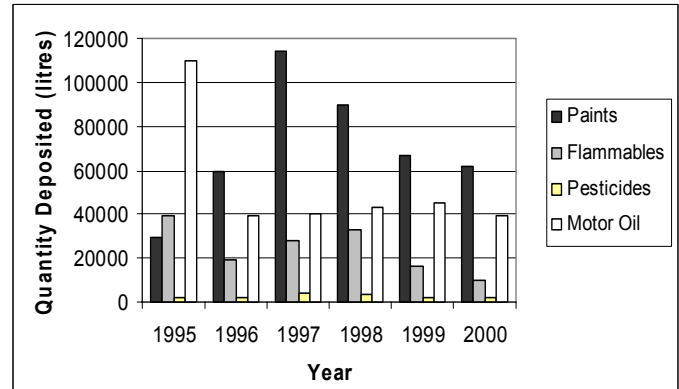
- Residential waste generated per person
- Total solid waste generated by sector (residential versus industrial, commercial, and institutional (ICI))
- Percent of the City's waste stream diverted
- Household Hazardous Waste deposited at depot



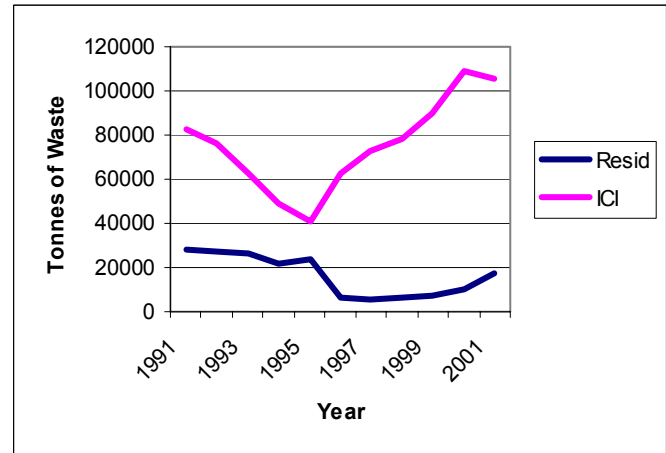
Percent of solid waste diverted from landfill.



Tonnes residential waste per person.



Household hazardous waste deposited at depot.



Tonnes of waste deposited by sector.

### Long-term Goal

Reduce the amount of valuable recyclable commodities/organics and hazardous materials sent to landfill to zero.

### Short-term Target

Continue the success of the wet-dry facility, and increase participation in the program by the ICI community.

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## How are We Doing?

### NEEDS IMPROVEMENT

In general there has been a decrease in the deposit of hazardous wastes at the depot. This may partially be due to garages and oil change service centres being required to collect used oil for treatment. Since 1996, the percentage of waste diverted from landfill appears to be steadily decreasing. This is a result of decreasing capacity at the wet-dry facility for separation of the recyclables and decreasing capacity at the Eastview Landfill.

#### Limitations of the Indicator

The selected measures provide a reasonable estimate of the amount of waste generated per person and the overall waste generated in the ICI sector. However, a challenging pressure being faced is the impending closure of the Eastview landfill site. As of 2002, the city is hauling waste out of the city.

## How to Improve Performance

### *Citizens*

- Purchase products in bulk, durable and without extra packaging.
- Dispose of waste properly at the Household Hazardous Waste Depot.

### *Business*

- Manufacturers and packagers can improve packaging design and use reusable parts, components and delivery systems (plastic skids).

### *Government*

- Promote recycling, composting programs and use of the Household Hazardous Waste Depot.
- Continue implementation of the Environmentally Preferable Products initiative and communicate new knowledge to public and local businesses.

Data Source: City of Guelph Works Department, Waste Management



## — *Section 7.0* —

# Outdoor Air Quality

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### **Overview**

Awareness has been raised worldwide regarding the interconnectedness of human health and environmental quality. Air quality is an important factor in everyday health and wellbeing. From ground-level ozone or “smog” created by automobiles to greenhouse gases that affect our climate over time and acid rain causing emissions, air quality is directly and indirectly linked to the health of Guelph’s residents over time.

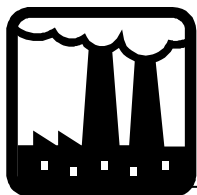
Air quality in Guelph is not only affected by local actions but also by regional and global sources. Coal-fired electricity generators,

highway use and industrial activities in proximity to urban areas are major contributors. Locally, economic growth and emissions from internal combustion engines are major culprits.

### **Guiding Principles**

- The residents of Guelph should be protected from the negative health effects of air pollution.

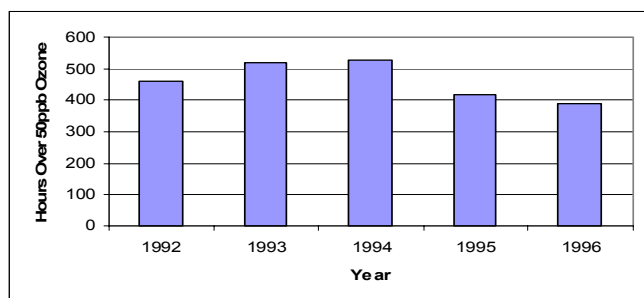
This principle is outlined in Guelph’s Official Plan, which encourages “...a reduction in greenhouse gas emissions in order to minimize Guelph’s contribution to climate change impacts.” There is no specific reference in the Green Plan to outdoor air quality.



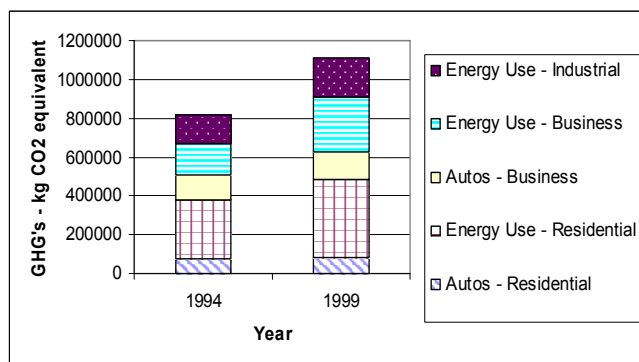
## 7.1 Ozone and Greenhouse Gas Emissions

### Description of Indicator

Overall air quality is measured using several metrics. These include: number of criteria ozone exceedances, greenhouse gas emissions (a measure of all known air emissions which contribute to climate change, including CO<sub>2</sub> and sulphur dioxide, measured in terms of their CO<sub>2</sub> equivalent), particulate matter concentrations and hospital admittances due to air quality related illnesses. Unfortunately some of these data are not available (but should be sought for the next edition of this report).



### Number of criteria ozone exceedances



### Greenhouse Gas Emissions

*NOTE: Only two years of data were available at the time of analysis. The City is now gathering these data on a regular basis.*

### Long-term Goal

Reduce pollutant sources to the point of no occurrences that exceed provincial air quality standards.

Data Sources: Wellington-Dufferin-Guelph Health Unit, Ministry of Environment, City of Guelph

### How are We Doing?

#### HARD TO SAY

Although the monitoring station was reinstated in 2001, there are 3 years of missing data. Data for 2001 are not yet available. The monitoring station must be maintained to ensure a local data source.

### Short-term Target

Continue use of the air quality monitoring station at Exhibition Park to monitor air quality. Decrease the number of smog days to below the annual provincial average.

### Limitations of the Indicator

Air pollution is affected by wind patterns. The movement of pollutants in Southern Ontario can influence air quality in Guelph. It is not known whether the monitoring station data can be compared with other nearby cities or provincial air quality readings.

### How to Improve Performance

#### Citizens

- Turn down your thermostat in the winter and turn it up in the summer (see EnerGuide website).
- Bike, walk, use public transit or carpool.
- Don't let your car idle.

#### Business

- Eliminate air pollution by restricting unnecessary idling of motor vehicles.
- Promote "urban greening." Plant and protect trees and shrubs.
- Participate in the Commuter Challenge.

#### Government

- Continue the Climate Change Protection Program and help implement initiatives in the community.
- Provide incentives for industry to improve efficiency, reduce pollutants and seek cleaner energy sources.
- Improve local mass transportation systems and bicycle routes.



## — *Section 8.0* —

# Employment Trends

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### Overview

A society that does not have excess wealth or poverty will put less pressure on the social and economic environment. However, low incomes or extreme inequality of incomes reduces the quality of life and enjoyment of many people. Anyone who cannot find employment on a full-time basis, when they wish to do so, must make compromises. They may, for example, take only part-time work, usually at a lower income, or they may work in a job which is below the level their skills and aspirations.

The indicators in this section are used to see trends in the City of Guelph through changes in per capita income, number of low-income families, median family income and post-secondary labour force.

### Guiding Principles

- There should be maximum opportunity for those who wish full-time work, and this employment should meet, as a minimum, the necessities of life.
- There is social desire to have average incomes increase and the incidence of low incomes decrease, in keeping with the Ontario average.
- Every member of the work force should have as much education as needed to allow that person to adapt and grow with the changes in their living situation.
- Guelph should be promoted as having an environment that makes it a desirable place to live and work.

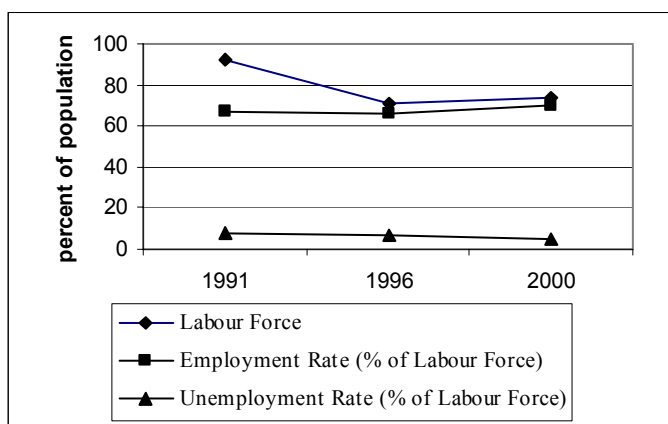




## 8.1 Labour Force in Employment

### Description of Indicator

This measure examines the percent of Guelph residents over the age of 15 years who have full- or part-time employment, including self-employment and unpaid family employment. Note that the percent of labour force employed does not identify whether individuals are employed part-time only because they cannot find full-time work or take two or more part-time jobs as their only recourse.



Percent of Population in Labour Force

### Long-term Goal

The goal is to have full-time employment for all who seek it, within their level of competence and aspirations.

### Short-term Target

To increase the percentage of the labour force who have full-time employment.

### Limitations of the Indicator

These measures exclude the labour force that no longer seeks employment because they have given up hope of finding the kind of work for which they are skilled. Self employed and employed in the family business are difficult to account for. The unemployment rate does not

### How are We Doing?

#### HARD TO SAY

The data for Guelph are somewhat ambiguous, especially as they do not distinguish between part-time and full-time employment. The data show a slight decrease in the unemployment rate from 1991 to 2000, with a corresponding slight increase in the employment rate. During this period, Guelph has to continue to maintain a competitive edge and promote full-time employment with better pay for its citizens.

It is not known whether part-time work is on the rise or decreasing. Also self-employed residents are not properly included in the data.

include people who are under-employed, or who earn low wages, and does not distinguish among temporary, part-time and full-time employees.

### How to Improve Performance

In general, increase the efforts at attracting local employment opportunities whose labour requirements match those local residents.

#### Citizen

- Consider joining a volunteer network to gain new job experience.
- Support local services and businesses to help generate jobs.

#### Business

- Hire a student or seek employees through government programs or job centres.
- Get involved in a cooperative education program.

#### Government

- Continue to hire local employees through employment insurance or social assistance programs.
- Support programs that develop skills needed in the local labour market.

Data Source: City of Guelph, Planning, and United Way Community Services of Guelph and Wellington



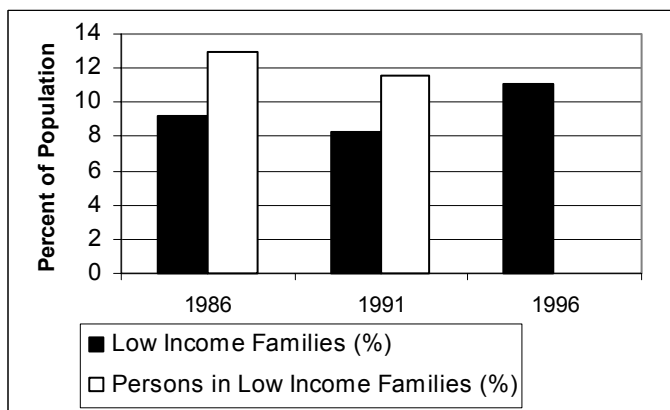
## 8.2 Income Level

### Description of Indicator

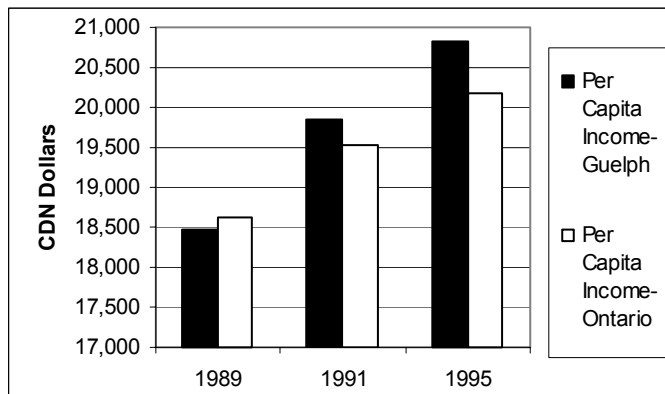
Several measures are presented to examine the average income in Guelph, and the incidence of low-income families.

Per capita income is estimated through income tax returns filed by taxpayers with the Government of Canada. Low income is based on whether a family spends more than a certain percentage (56%) of their income on necessities (food, clothing and shelter). The "low-income cut-off" in dollars for a family of four in 1996 was \$27,338 (for a community of Guelph's size) according to the Ministry of Supply and Services.

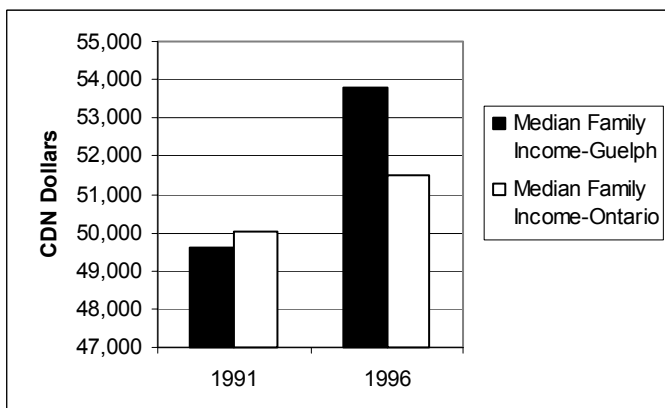
The level of median income in Guelph can be compared to the level of median income in Ontario as a whole. This means that half of the families have incomes below this measurement and half of the families have incomes above this figure.



Percent of population with low income



Per capita income, Guelph and Ontario



Median income, Guelph and Ontario

### Long-term Goal

Maximize incomes with a socially desirable degree of equality while maximizing the opportunity for each person in the community to create income to the level of their abilities.

### Short-term Target

Reduce the incidence of low-income families.

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## How are We Doing?

### NEEDS IMPROVEMENT

The picture is mixed. In general, average income (individual and family) in Guelph has been increasing while the number of low-income families has also increased. In 1989, the per capita income in Guelph was lower than the overall level of Ontario. By 1995, the opposite was true, but the number of people on social assistance rose substantially. This could indicate a widening gap between rich and poor.

#### Limitations of the Indicator

The separations between data points limit the meaningfulness of this indicator. Census data is only available every five years. The 2000 census data was not available to be included in this edition of Guelph's SOSR. Additional indicators should be considered in the next edition. There may be other social and economic measures that indicate positive trends in income. For instance, are services being met in conjunction with changes in percentage of low-income families? A median is a rough measure of the income distribution.

## How to Improve Performance

### *Citizens*

- Be prepared to upgrade their skills, obtain higher diplomas and degrees, and to do voluntary work to gain experience that may lead to better paying employment.

### *Business*

- Provide co-op placement opportunities to Guelph citizens.
- Developing training programs according to the needs of industry.

### *Government*

- Improve opportunities to earn a living wage for all persons, which might include education and training, and programs which create increased feelings of optimism, self-esteem and hope.

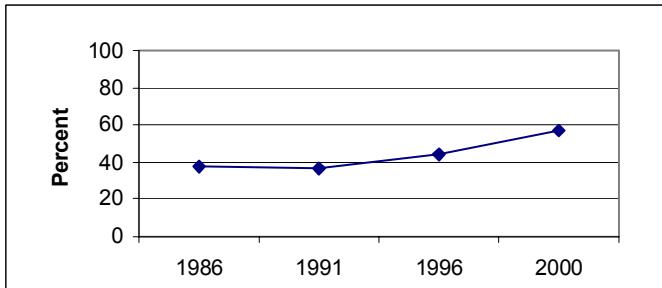
Data Source: United Way Community Services of Guelph and Wellington



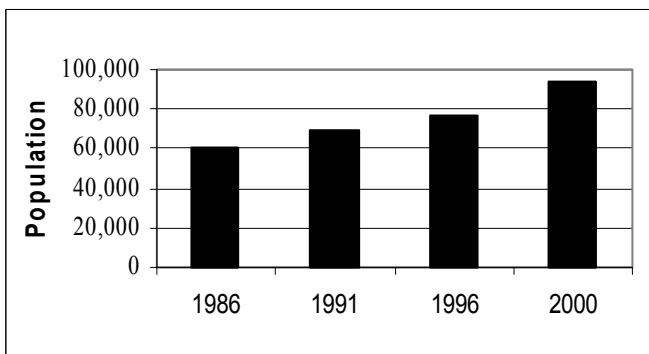
## 8.3 Post-Secondary Qualifications

### Description of Indicator

Post-secondary education includes university degrees, college or on-the-job apprenticeship, or other kinds of formalized training and education. Education does not need to be job-related; it could lead to spiritual growth, aesthetic development in any of the arts or simply heightened ability to judge situations and alternatives. Post-secondary education provides an individual with the knowledge to look for a wide array of employment opportunities, flexibility in job seeking, and provides the opportunity to respond to changes in the work place.



Percent of Labour Force with Post-Secondary Education



Population Over Age 15

### Long-term Goal

Provide all people with opportunities for post-secondary education at reasonable cost. Any member of the labour force should be able to

### How are We Doing?

#### MAKING PROGRESS

In 1991, Guelph labour force had a higher level of post-secondary education (40.9%) than was true in Ontario as a whole (36.6%). The number of individuals graduating from with post-secondary qualifications is rising at a rate consistent with the population over 15 years of age. It appears that opportunities are keeping pace with the number of individuals that hope to obtain post-secondary qualifications in Guelph.

develop skills and knowledge that add to their productivity and happiness.

### Short-term Target

Increase opportunities for post-secondary education and remedy shortcomings as they become known.

### Limitations of the Indicator

There are other forms of learning not captured in these data. Post-secondary education is no guarantee of employment at the level of one's education or in one's chosen field.

### How to Improve Performance

#### Citizens

- Be prepared to go back to school to obtain high school diplomas.

#### Business

- Get involved in providing co-op placement opportunities for Guelph citizens who are at high school.

#### Government

- Identify any conditions, which act as barriers to persons who would like to proceed further on their education and provide assistance to persons to achieve their highest level of potential.

Data Source: City of Guelph, Planning



## —Section 9.0— Stable Healthy Families

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### **Overview**

A truly sustainable community will have the strength of the family unit at its core. Several aspects of stable healthy families are considered here.

- **Child Safety and Domestic Disputes**—A powerful indicator of a community at risk is a growing number of situations where spouses are subjected to abuses and the safety of children within the family is in question.
- **Public Safety and Security**—Risks to the public from theft and fire affect the safety and security of the entire community.
- **Personal Health**—Canada's health care system is among the best in the world in terms of its availability to every member of the community. However, as technology advances to provide improved treatments and diagnostic procedures, the cost of accessing this care is escalating rapidly.

Cases of unhealthy and unstable families may arise from a myriad of causes, but they are frequently associated with social and economic stresses. Addressing some of these root causes, explored more in other focus areas, could strengthen Guelph's families.

### **Guiding Principles**

- Families should minimize situations in which children need to be removed for care or in which one spouse assaults the other spouse.
- Help needs to be provided and remedial actions taken to avoid further unhealthy conditions.
- People should be able to live healthy lives and die of natural deterioration (old age) due to causes other than preventable diseases.
- Minimize all dangers and threats to safety in the home and in citizens' lives.



## 9.1 Children in Care and Domestic Disputes

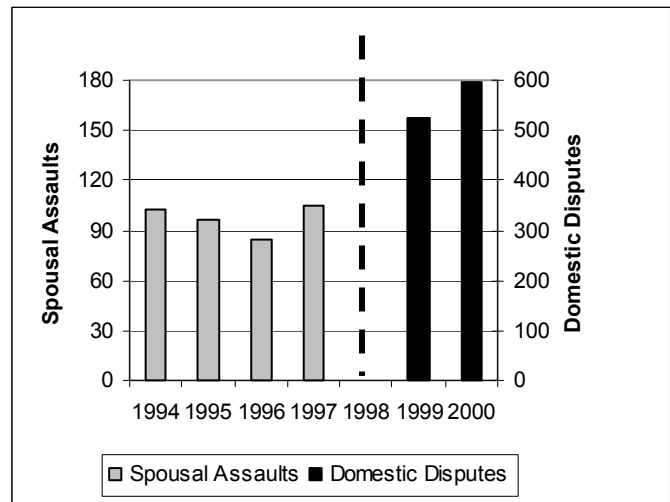
### Description of Indicator

#### a. Children in Care

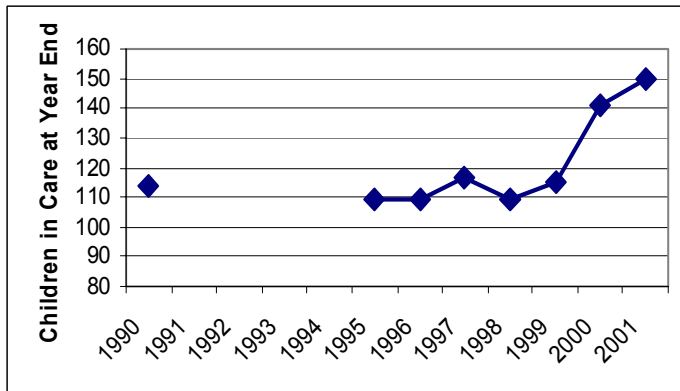
The number of children in care looks at cases in which children have had to be removed from their families temporarily or permanently and taken into the care of the Family and Children's Services and the number of investigations initiated over the course of the relevant year.

#### b. Domestic Disputes

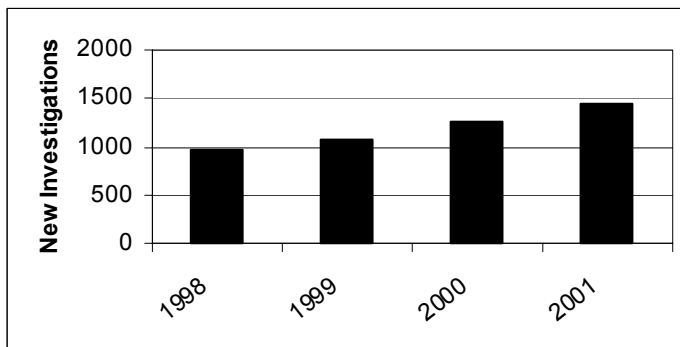
The second metric looks at the number of cases of violence in the home where the police have become involved. Although the previous SOSR detailed "assaults," these actions are now recorded under "domestic disputes" and may or may not include actual spousal and/or child assaults. In either case, these occurrences may



*Family situations where authorities have been called upon to intervene.*



*Children in Family and Children's Services Care at Year End*



*Number of New Investigations (Family and Children's Services)*

or may not result in charges being laid, but they do indicate an unstable family environment.

#### Long-term Goal

Zero cases of children in care and zero domestic violence situations.

#### Short-term Target

Continue to address these negative community situations and build general awareness of their existence. Ensure that all cases that need to be reported are being reported. Determine the underlying causes and set priorities to address in a programmed way.

#### Limitations of the Indicator

The measure of children in care does not consider why children enter care, how long they stay or whether care has been required before. The data are ambiguous in that they could reflect a worsening situation or a greater degree of reporting and/or community involvement.

The long-term goal should reflect positive factors of family health and wellbeing rather

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## How are We Doing?

### NEEDS IMPROVEMENT

The data are difficult to interpret but may suggest no change in the rate that children are entering care. In recent years the number of children in care at year-end has risen at a similar pace to the number of problem situations reported and investigated. The implementation of the new Risk Assessment Model in Ontario together with changes in legislation have resulted in more investigations of abuse and neglect than in previous years, and consequently in a greater number of children being admitted into care.

The way domestic abuse situations are being reported and handled has changed, making it hard to compare the two periods. Increased policing and a society less tolerant of such behaviour may contribute to better reporting.

than the absence of family problems. Future issues to consider may include homelessness, literacy, substance abuse, mental health and participation in community leisure activities. It is important to understand both aspects and to educate families to reinforce their strengths.

## How to Improve Performance

### *Citizens*

- Support the United Way, shelters for those fleeing violence and abuse prevention programs.

### *Business*

- Support the United Way and abuse prevention programs.
- Build awareness of the need for families to receive assistance when in problem situations.

### *Government*

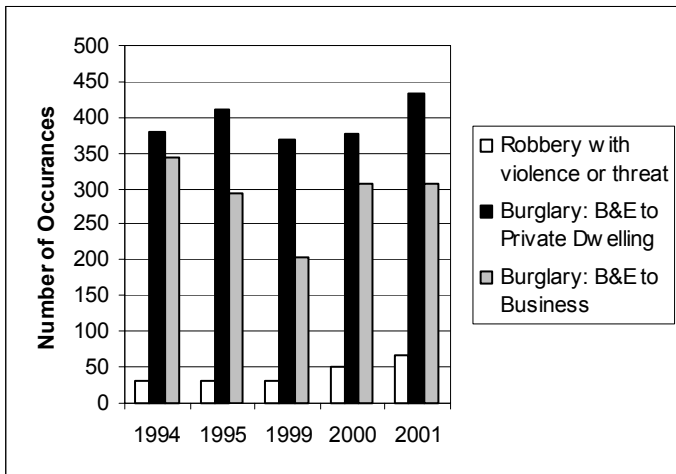
- Find measures to assess family strengths and develop user-friendly tools for parents to emphasize the positive aspects of their lives.
- Provide confidential counselling to those who have been identified or who have identified themselves as having a high risk for violent behaviour.
- Continue to promote parenting support and education.



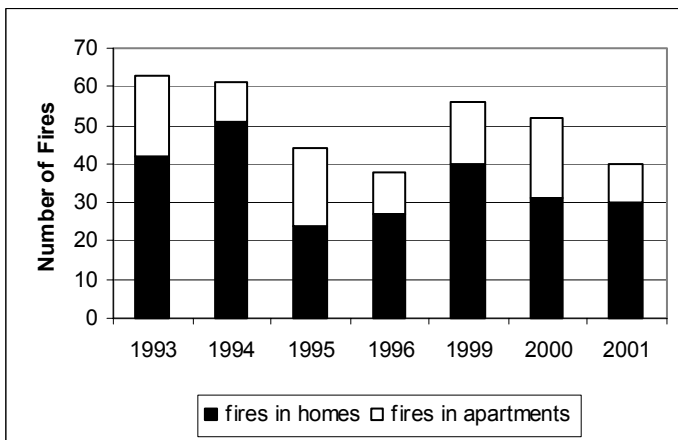
## 9.2 Public Safety and Security

### Description of Indicator

The measures selected to represent public safety and security are the number of incidents of robbery and burglary, and the number of fires in residential units. They were selected as they reflect some of the most common threats to the safety of persons in their homes and in their lives around the City. They are the type of dangers that can happen to anyone.



Number of Robberies and Burglaries, Guelph (selected years).



Number of Fires in Guelph Households (1993 to 1996 and 1999 to 2001).

Data Source: Guelph Police Service, Guelph Fire Department

### How are We Doing?

#### HARD TO SAY

Although there has been a slight increase in the number of robberies in the City in recent years, the number of burglaries at homes and businesses have remained relatively constant. Similarly, the number of fires has fluctuated from year to year, but these changes have not been significant, especially when considered against Guelph's increasing population. The fire department continues to respond to 911 emergency calls (4,915 in 2001). Both of these departments also play key roles in educating the public on safety issues.

### Long-term Goal

To have zero levels of these unfortunate events in our community.

### Short-term Target

Decrease the numbers of robberies, burglaries and fires in Guelph. Continue educational efforts toward these ends.

### Limitations of the Indicator

These two measurements do not cover the entire range of possible dangers to public safety.

### How to Improve Performance

#### Citizens

- Use smoke detectors and other fire safety items in the home. Have a plan for safely evacuating in case of fire.
- Be a watchful neighbour.
- Ensure homes are secure.

#### Business

- Use smoke detectors and have fire extinguishers available. Ensure staff is aware of their location and proper maintenance and use.

#### Government

- Continue to design and plan with an emphasis on safety features, including lighting, access to services and neighbourhood ownership.
- Continue to educate the public on fire safety, and ways to minimize burglary.





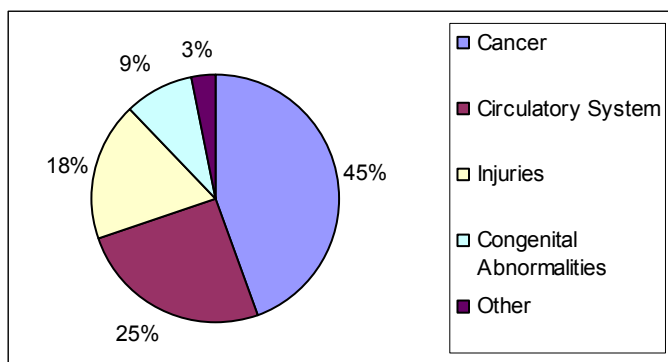
## 9.3 Personal Health

### Description of the Indicator

The measures reviewed to represent personal health deal with physical conditions and outcomes of health over time. They include the incidence of low birth weight infants, falls among those over 65 years of age, deaths from all forms of cancer and deaths from heart disease.

Two measures describe the diseases that cost our community the greatest losses. The first is the Potential Years of Life Lost (PYLL). It describes the years of life, which a person potentially might have, which are lost as a result of a premature death from an illness or disease. The second indicator measures the Leading Causes of Death (LCOD) as a percentage of all deaths that year.

Some of these data are already documented in the Wellington-Dufferin-Guelph Community Well Being Report but are not available for inclusion here. Other data were simply not available. The following is based on the data presented in the first edition of the SOSR.



**Percent of Total Potential Years of Life Lost (PYLL) by Major Disease Groups, Guelph, 1994**

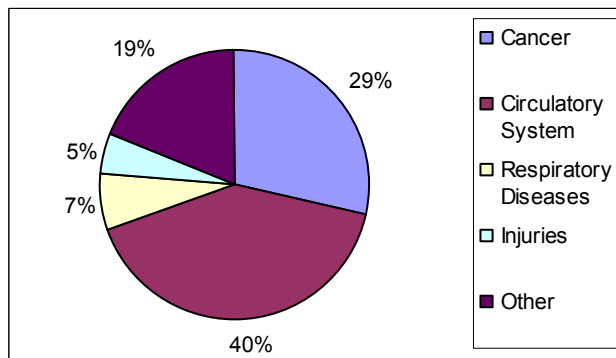
### Long-Term Goal

Reduce the incidence of all preventable diseases, increase the level of care to ill people

Data Source: 1998 SOSR

### How are We Doing?

**NO NEW DATA**



**Leading Causes of Death (LCOD), Percent of Total, 1997**

and increase the knowledge of every person about how to achieve the highest possible level of "wellness."

### Short-Term Target

Reduce the years of potential life lost from all forms of preventable disease. Increase the level of understanding of the general public and health care professionals about preventing the onset of diseases and the identification of disease at its earliest stage in an individual.

### Limitations of the Indicator

The measures do not directly reference the Guelph community and the data are not readily available. The measures should be revised in the next edition of this report.

### How to Improve Performance

#### Citizens

- Practice healthy living.

#### Business

- Provide exercise and healthy living incentives for employees.

#### Government

- Support wellness programs.



## —Section 10.0—

# Community Capacity Building

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Building the capacity of community members can take many forms, from internet chat groups to continuing education classes to sports training camps, and can cover a wide range of topics, from cooking to second languages to yoga or basketball. In any of these activities, people's capacity—their knowledge and skill set—are broadened, to the benefit of themselves and those around them.

In this section, the SOSR looks at three indicators of community capacity building—recreation facilities, environmental education, and cultural development. These disparate activities and topics only begin to touch on the many opportunities for skill building and continuing education available in Guelph.

### **Guiding Principles**

- Recreation is an important part of physical and mental health of all ages. It provides an important binder within the community to promote cohesion and shared objectives.

- Environmental awareness and knowledge should be increased so people of all ages will have a greater understanding of how natural systems function and the negative impact of human activities.
- Extra curricular activities in the fine arts and music should be increased so people of all ages will have a greater understanding of creativity, innovation and personal satisfaction.

The Official Plan does reference the provision of recreational facilities, particularly in conjunction with new growth. The key objective under the heading community facilities is “to promote the maintenance and development of sustainable neighbourhoods by providing community facilities that supports a high quality of life standard for all residents.”



## 10.1 Recreation Facilities

### Description of the Indicator

The number of recreational facilities that are available to the public and their scope and design capability to serve the public should be an indicator of the strength of a community.

#### **Recreation Facilities Available for the Public--1997**

- Over 180 clubs and committees involved in providing or organizing recreation activities in municipal or other facilities
- 415 ha of land for parks and natural areas owned or leased by the City
- City owns and operates:
  - 4 arenas
  - 6 recreation trails (total length of 18.7 km)
  - 24 tennis courts
  - 2 multi-facility recreation centres
- Numerous institutional and commercial facilities (golf courses, health clubs, etc.) available to some or all of the public

### Long-term Goal

To provide sufficient and adequate facilities and staff to meet the constantly changing needs of the population, from infants to the aged, in all neighbourhoods.

### Short-term Target

Continue the studies and planning needed to keep up-to-date with the recreational needs and interests of the community and its growing neighbourhoods.

### Limitations of the Indicator

This indicator is limited to municipally owned and operated facilities. Local sports organizations (soccer clubs, for instance), and similar groups are not included, nor are the

### How are We Doing?

#### **NO NEW DATA**

There is continuous pressure on existing facilities to be properly maintained and upgraded. Changing age structure and personal preferences, (along with population growth), create ever-changing needs and demands. The City has recently invested in a new West End Recreation Centre and plans are in place for a comparable facility in the South.

many private facilities available. Some of the private facilities offer access to the public but not on an unlimited basis. The indicator data are general, and cannot tell us other details such as the degree of use of the facilities or hours available to users.

### How to Improve Performance

#### *Citizens*

- Join a recreational centre. Get children into community services recreational courses.

#### *Business*

- Provide developments that offer more finished recreational space earlier in their projects so new residents can more easily participate.

#### *Government*

- Adhere to guidelines for recreational space and facilities in new neighbourhoods.
- Ensure appropriate staffing for studies and programs is provided on a consistent basis.
- Maintain recreational opportunities as an integral component of the school curriculum.

Data Source: 1998 SOSR



## 10.2 Environmental Education

### Description of the Indicator

The indicators in the area of environmental education are mostly qualitative. Each school has a degree of freedom to provide time to cover environmental processes in individual courses, depending on the interests and knowledge of each teacher. It is possible for individual teachers to enrich the knowledge and awareness of students, but there is no systematic measurement possible at this time.

### Long-term Goal

Provide all children with ample opportunities to learn about natural phenomena so they will incorporate environmental knowledge in their everyday lives.

### Short-term Target

Restore and increase the training for teachers to better equip them to bring nature and environmental education into their classroom discussions. Emphasize the need for outdoor education as part of the curriculum.

### Limitations of the Indicator

Most environmental courses have been removed through provincial changes to the secondary school system. The lack of a formalized requirement for environmental education limits efforts to achieve the short-term targets.

### How are We Doing?

#### NO NEW DATA

The current loss of environmental science courses could jeopardize the public's understanding about the need for careful and forward-looking management of our environment. Environmental education has not been progressing forward, except for the efforts of a few dedicated teachers. Unfortunately, they may focus to champion a cause rather than emphasizing a comprehensive approach to stewardship.

### How to Improve Performance

#### Citizens

- Take on additional responsibility to teach children about the environment.

#### Business

- Become a champion of good environmental practices and leader of community projects.
- Provide annual support for school activities in environmental stewardship.

#### Government

- Changes education policy so that opportunities exist within the school curriculum to increase public awareness and participation in environmental stewardship.
- Provide materials and seminars to help teachers incorporate environmentally oriented elements into their educational programmes.



## 10.3 Arts and Heritage— Cultural Development

### Description of the Indicator

In 1998, the indicator selected for cultural development focused on classroom time devoted to instruction and participation rate in the arts. However, the actual measure used was slightly different in that it asked each secondary school how many clubs have been organized by students, with teacher assistance to carry on extra-curricular activities in the arts: music, drama, dance, photography, writing and so on. The arts is facing challenges similar to those for environmental education, therefore no new data are available at this time. The following is based on the first SOSR.

### How are We Doing?

**NO NEW DATA**

### Limitations of the Indicator

The indicator uses data based on enrolment numbers in a variety of clubs and thus some extra-curricular activities may not be included in this estimate. Academic pressures to enter University may inhibit some students' ability to participate in extra-curricular activities. A student may participate in two or more clubs or only participate for part of the year.

### How to Improve Performance

There is a great diversity of sources for cultural development through local non-profit organizations, artists' studios and commercial and festival music venues.

#### Citizens

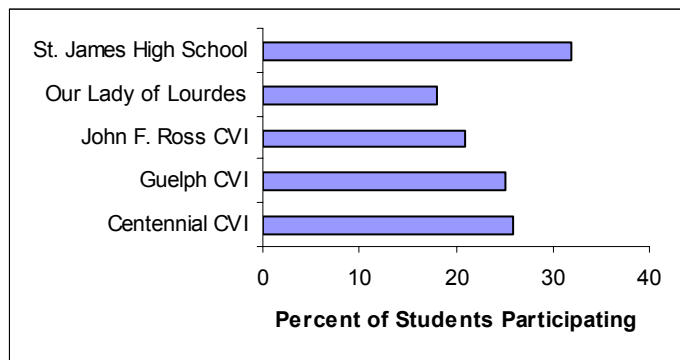
- Visit local galleries and participate in arts and music events.

#### Business

- Financially support the arts.
- Promote events and volunteer space for activities.

#### Government

- Provide more leadership and teaching resources to student groups.
- Reduce economic pressures on high school students to take on jobs that reduce time and energy devoted to extra-curricular activities.



### Participation Rate in Art and Music Clubs in Secondary Schools, 1997

*NOTE: College Heights Secondary School is a special case in that much creative work takes place within regular classes.*

### Long-Term Goal

Make all resources available to stimulate awareness and skills in the many kinds of arts activities to open up the creative instincts of every person.

### Short-Term Target

Restore vital funding to teaching and other organizations that provide resources to encourage music and other arts activities in course and in extra-curricular activities.

Data Source: 1998 SOSR



## —Section 11.0— **Community Cohesion**

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Active involvement from all parts of the community is an important component of building strong social bonds that will enable the community to function harmoniously. Two indicators of this involvement, and thus community cohesion, are examined. A sense of the desire to get involved in the community can be ascertained by the participation rates in local government elections. Community support of the United Way reflects the concerns of citizens for each other.

### **Guiding Principles**

- The community has an opportunity and a responsibility to become knowledgeable of the electoral process and to take part in the public processes. An informed public is the best guarantee that decisions will be sound and attuned to community desires.

- In a healthy community, the residents care whether there are other residents with needs which they are unable to meet themselves or whose needs can be partly met with help from others. Some of those needs may be purely individual, such as hot meals for disabled or elderly persons, while others may be more collective, such as building confidence throughout the community so that in times of trouble there are others on whom they can rely.



## 11.1 Local Government Participation

### Description of Indicator

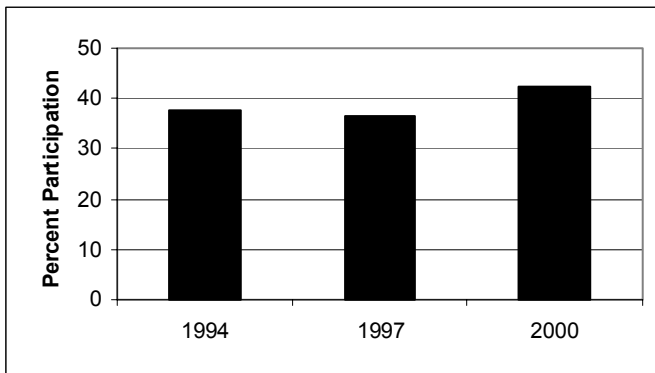
The participation of eligible voters is a long-recognized measure of the level of political involvement by the public. There is an accurate and immediate count of votes cast as a percentage of persons eligible to vote in all governmental elections. For this report, municipal election voting rates were considered.

### Long-term Goal

To have 100% of people qualified to vote cast their vote in each election.

### Short-term Target

To increase participation rate in elections.



Percent of Eligible Municipal Voters Casting Ballots.

### How are We Doing?

#### HARD TO SAY

The voting rate for Guelph municipal elections has remained relatively constant over the years. The voting rate in Guelph is about the same as other communities in Ontario, which suggests that the causes of low participation are common to this province and perhaps Canadian public life.

### Limitations of the Indicator

One criticism of the indicator is that the list of eligible voters is not necessarily accurate. It may contain the names of individuals who have moved, died or are ill and it may exclude people who have recently moved to Guelph or who are conscientious objectors for personal reasons.

### How to Improve Performance

#### Citizens

- Exercise your rights and vote.

#### Government

- Establish a specific day in each year to publicly discuss topics that have a high degree of citizen interest. People may begin to see that their involvement has an impact and increase their participation level.
- Create tools and activities that further encourage people to vote, such as web-based information.

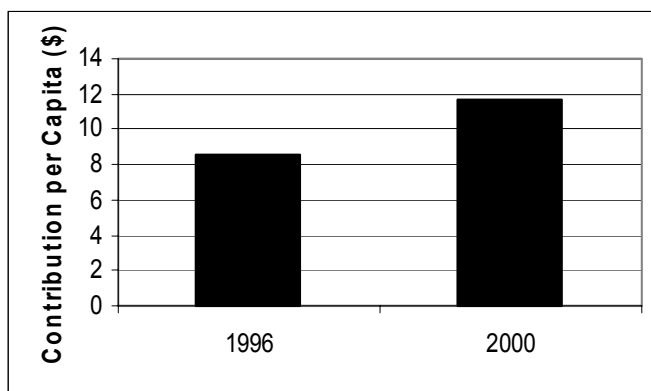
Data Source: City of Guelph – City Clerk's Office



## 11.2 Community Concern

### Description of Indicator

In the first edition of the SOSR, two indicators provided evidence of how healthy our community is in terms of the amount of care given through donations and volunteer time to programmes at the United Way. While the data on volunteers is no longer updated, this discussion maintains its importance as a measure for future consideration.



Per Capita Dollars Contributed to the United Way

### Long-term Goal

Have as many financial and volunteer resources as needed for community programmes, so no person in need will go without assistance when required.

### Short-term Target

Increase revenue from contributions and the number of persons willing to volunteer to social agencies and other non-profits organizations. Exceed the national volunteer rate of 27% (in 2000) as determined by the Canadian Centre for Philanthropy's *National Survey of Giving, Volunteering and Participating*.

### Limitations of the Indicator

It may be too difficult to gather data on every volunteer or donation made to help local

### How are We Doing?

#### Funding—HARD TO SAY

Contributions increased to United Way from 1996 to 2000. However, this measure does not reflect the number of individuals giving but rather a state of philanthropy in a given year. Other organizations may increase our knowledge on community giving such as Guelph Community Foundation and The Children's Foundation. The Volunteer Centre of Guelph/Wellington maintains a registry of volunteers and is actively recruiting participation.

#### Volunteerism—NO NEW DATA

people. The measure of dollars contributed may reflect an overall strength of the economy and/or the effort of campaign organizers.

Donation per capita measure does not indicate the actual number of donors in the community. Generally, fewer people are donating each year, yet they are donating more.

New measures should be considered to adequately measure care through volunteerism or financial giving (for instance, number of applicants referred by the volunteer centre).

### How to Improve Performance

#### Citizens

- Continue to donate your time and resources as often as possible.
- Contact the Volunteer Centre of Guelph/Wellington.

#### Business

- Participate in national volunteer week activities.

#### Government

- Facilitate the establishment of a voluntary sector roundtable.
- Offer and advertise volunteer opportunities in the community.

Data Source: United Way of Guelph and Wellington County



## —Section 12.0—

# Conclusions and Recommendations

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### 12.1 Overview

It is difficult to arrive at a single all-inclusive result from the State of Sustainability Report. The indicators reflect such disparate aspects of Guelph's environmental, economic and social wellbeing that an overall statement would reflect little about how the community is becoming more or less sustainable in its activities and behaviours. However, the individual commentaries provided herein do show trends over time and future stresses in certain areas. The data in this report may also provide significant baseline data for the city to develop a more detailed benchmarking program in the immediate future.

In general, Guelph seems to be making positive strides in five of the ten broad focus areas. Seven of the 25 indicators are improving over time. Notably, upcoming municipal program changes such as the creation of the water use limits to address summer droughts, and the move to three-stream waste collection should continue to ensure progress is made in Guelph.

In other cases, it is very hard to say if the city is succeeding in its efforts. Several aspects of indicator collection and analysis play a role here. In some cases, there are too many conflicting variables affecting the data, making

decision making inconclusive. In others the lack of data, either because it was not collected regularly, not collected in an "indicator friendly" format, or not made readily available, makes any analysis difficult. The lack of quantified targets also limits data interpretation.

Finally, in some cases, it is clear that Guelph is not moving forward toward sustainability. Automobile travel, energy consumption and environmental education all need improvement. City (corporate), business and citizen-led initiatives are trying to address these issues, but the net results are not yet outstanding.

### 12.2 Limitations of the Indicators

Specific limitations have been given in the discussion for each indicator. In addition, there are a number of general limitations that should be considered in future initiatives of this nature. These are outlined below.

#### *Selection of Indicators*

The indicators selected to represent each focus area may bring inherent limitations to a proper analysis. These indicators are asked to do a lot—reflect in a few measures the state of a usually complex system with pressures from numerous sources. In this version of the SOSR, data providers were surveyed and asked to

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comment on the validity of the metrics. A number of changes were suggested to aid measurement. These have been outlined in Appendix A. If the next SOSR is to be meaningful, it needs to identify trends in the measures presently being tracked. On the other hand, if the indicators do not truly mean anything to the public at large or are hard to get data for, then the whole reporting process will have questionable value. These conflicting issues need to be resolved. The number and type of indicators selected should be determined by community stakeholders.

#### *Availability of Data*

Timely access to valid data is critical for the production of this type of report. Limited data or its lack of availability delayed the production of the SOSR. Statistics Canada data from the 2001 census—which informs many of the indicators—were not available (and in some cases are still not available). In other cases, some City staff and other interested stakeholders were unable to provide data and feedback in a timely manner. This may be due to the data being asked for in a different format than it was collected. Additionally, the lack of awareness of City staff about the initiative meant that providing data was not a priority for all staff members contacted.

#### *Analysis of Data*

Although GPSC volunteer members have expertise in a wide variety of areas, the analysis of much of the data needs specialized interpretation. In the survey sent to data providers (see Appendix B), GPSC attempted to solicit this input but it was met with varying success. In other jurisdictions those providing data for state of sustainability reports also provide the commentary on the data. Groups like GPSC review these commentaries to ensure impartiality. GPSC should have this type of coordination role going forward.

Analysis was also hampered by the lack of clear targets for many of the metrics. Without targets

to measure against, statements of “making progress” and “needs improvement” can tend to be subjective or ambiguous. Targets should be based on strong science and grounded in the Official Plan and other such documents where possible.

### **12.3 Recommendations Going Forward**

The way in which the SOSR is produced needs to be re-examined to make it a more effective and efficient tool for City councillors, staff and citizens to gauge how Guelph is progressing toward sustainability. The following are brief recommendations for future editions of the SOSR. The GPSC realizes that some of this work may become part of a future Smart Guelph benchmarking process.

#### *Update the Reporting System*

- City staff in the relevant departments, other data providers (e.g., Grand River Conservation Authority, etc.), GPSC and community stakeholders need to come together to develop a common reporting system for indicator data and ensure that the data collected will answer the questions being asked. This system should increase the transparency and local relevance of information, report data annually or in a real-time format, be representative of community interests and improve public awareness. The new system might incorporate web-based technology for data management allowing for real-time data availability.
- The City must take greater ownership of the SOSR by educating staff and community on the report’s content and establishing an annual budget for its production and promotion.

#### *Review Indicator Meaningfulness*

- The current indicators should also be revisited during a Green Plan ten-year review and/or Smart Guelph development phase. Appendix A, which outlines the comments of data providers on the original

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and proposed indicators, should be a starting point for these discussions. GPSC should take the lead to examine the existing measures in the context of data availability, reliability and end uses.

- Going forward, the indicators should be improved in their resolution to provide better detail (e.g., temporal and spatial resolution). Ideally, the community should be able to ask and obtain answers to general questions as well as understand an indicator's complete history, trends over time and future stresses. Quantifiable indicators should be sought wherever possible.

#### *Develop a Coordinated Approach*

- There is a need for a team approach to developing and analysing sustainability indicators. Data providers and other interested stakeholders need to work together, with the majority of the commentary completed by the relevant data providers themselves. This would also help in ensuring timely access to data. GPSC should have a key role to maintain impartiality and community relevance.
- Long-term participation could be enhanced by a formal partnership between the environmental, social and economic sectors working collectively. This process might begin with the creation, on an annual basis, of working groups by sector, use of web-based tool kits and creation of a community awards program.

#### *Focus on Environmental Indicators*

- In preparing this version of the SOSR, GPSC found redundancies with social indicators in the *Wellington-Dufferin-Guelph Community Well Being Report*. Given the Green Plan's focus on environmental sustainability, it is recommended that GPSC consider only the environmental components of a community sustainability report. However, recognizing that the environment is only part of the sustainability puzzle, GPSC suggests preparing a state of sustainability report in coordination with other agencies to ensure all aspects of a citywide sustainability indicator system—environmental, economic and social—are covered.

#### *Promote and Distribute the SOSR (2nd ed.)*

- At a minimum, the second edition of the SOSR should be placed on the City's website with a comment form for community feedback.
- It is recommended that a plan be developed to promote the report throughout the community. For example, a short summary document or "report card" on the indicators might be prepared for distribution at various civic events.

## **APPENDIX A: INDICATOR REVIEW PROCESS AND INDICATORS FOR FUTURE CONSIDERATION**

**Table 1: Review of Current Indicators**

| Indicators Reviewed<br>for 2 <sup>nd</sup> Edition   | 1 <sup>st</sup><br>Edition | 2 <sup>nd</sup> Edition |                    |                      | Commentary and Recommendations<br>for Future Editions  |
|--|----------------------------|-------------------------|--------------------|----------------------|--|
|  |                            | Data<br>Received        | Survey<br>Received | Current<br>Status    |  |
| LAND USE AND DEVELOPMENT   |                            |                         |                    |                      |  |
| <b>Open Spaces and Natural Corridors</b><br>a. Natural open space in the city<br>b. Park open space and facilities in the city   | x<br>x                     | no<br>yes               | no<br>yes          | included<br>included | <ul style="list-style-type: none"><li>• New heading - Open Space and Natural Corridors. Combine open space measures to evaluate progress toward a linked open space concept. A detailed inventory should be done to include stormwater areas and trails created.</li></ul>   |
| <b>Ecological Sensitivity and Habitat Protection</b><br>a. Average Number of Bird Species in Christmas Counts  | x                          | yes                     | yes                | included             | <ul style="list-style-type: none"><li>• New heading - Ecological Sensitivity and Habitat Protection. Measure is difficult to interpret. Consider other measures such as wildlife species richness, indicator species counts or habitat conditions of core and non-core greenlands. Revise in future editions of the SOSR; consider other indicators.</li></ul> |
| <b>Land Management</b><br>a. Communities in Bloom Competition  | x                          | yes                     | no                 | included             | <ul style="list-style-type: none"><li>• Indicator could include other sustainable land practices in the community such as pesticide reduction. Revise in future editions of the SOSR; consider other indicators.</li></ul>   |
| <b>Balanced Development</b><br>a. Relative Size of Property Assessment (residential vs. commercial/industrial)   | x                          | yes                     | yes                | included             | <ul style="list-style-type: none"><li>• New heading - Balanced Development. Measure is difficult to evaluate. Changes may not be controlled at the municipal level. Revise in future editions of the SOSR; consider other indicators.</li></ul>  |
| INTEGRATED TRANSPORTATION  |                            |                         |                    |                      |  |
| <b>Automobile Travel</b><br>a. Proportion of trips by auto, transit and walking/biking<br>b. Relationship between size of labour force residing in Guelph and the number of jobs inside Guelph | x<br>x                     | yes<br>no               | no<br>no           | included<br>excluded | <ul style="list-style-type: none"><li>• Modal split/share data should be maintained as the Official Plan gives the transportation target relative to modal split.</li><li>• Labour force indicator assumes that all people working outside of the city commute via car. Exclude from future editions of the SOSR.</li></ul>                                    |
| <b>Transit Ridership</b><br>a. Transit ridership per capita  |                            | yes                     | yes                | included             | <ul style="list-style-type: none"><li>• Guelph Transit states that transit ridership per capita is the generally accepted measure for transit use.</li></ul>   |

| Indicators Reviewed<br>for 2 <sup>nd</sup> Edition   | 1 <sup>st</sup><br>Edition | 2 <sup>nd</sup> Edition |                    |                                  | Commentary and Recommendations<br>for Future Editions   |
|--|----------------------------|-------------------------|--------------------|----------------------------------|---|
|  |                            | Data<br>Received        | Survey<br>Received | Current<br>Status                |   |
| WATER CONSERVATION   |                            |                         |                    |                                  |   |
| <b>Ground Water Quality</b><br>a. Concentration of chloride<br>b. Concentration of nitrates<br>c. Presence of <i>E. coli</i>                               | x<br>x<br>x                | yes<br>yes<br>yes       | yes<br>yes<br>yes  | included<br>included<br>included | • Guelph Waterworks recommends removing <i>E. coli</i> as an indicator and replacing it with VOCs in the future. The city collects and records VOC measurements on a quarterly basis.<br><br>• Continue to include in future editions of SOSR.  |
| <b>Water Consumption</b><br>a. Water Consumption (for all uses)  | x                          | yes                     | no                 | included                         |   |
| <b>Water Supply Reserve Capacity</b><br>a. Water Supply Reserve Capacity (uncommitted reserve capacity, perennial yield, rated capacity)                   | x                          | yes                     | no                 | included                         |   |
| <b>Impact on Speed River System</b><br>a. Waste water treatment plan effluent quality (TBOD5/TP)<br>b. Minimum dissolved oxygen (mg/L)/% violation of std) | x<br>x                     | yes<br>yes              | no<br>no           | included<br>included             | • Guelph Wastewater Services and the GRCA suggested considering the addition of ammonia and suspended solids data in future editions. Ammonia is an interesting indicator of wastewater discharge into river, fertilizer use and farming practices. Suspended solids would provide insight into farming practices, sand/gravel use. GRCA collects suspended solids and ammonia data (latter on behalf of MOE).          |
| <b>Surface Water Quality</b><br>a. Total loading of phosphorus<br>b. Salinity (concentration of salt)<br>c. Mass balances for water in the Speed River     |                            | yes<br>yes<br>yes       | no<br>no<br>no     | included<br>included<br>included | • There are overlaps between this group of indicators and those for impact on the Speed River system (above). Consider selecting two or three key indicators.<br><br>• Chloride was used as a measure of salinity. Other measures may be better such as dissolved solids, sodium and/or conductivity. Environment Canada recently listed road salt as a toxic substance. Salinity should be considered in next edition. |
| ENERGY CONSERVATION  |                            |                         |                    |                                  |   |
| <b>Energy Consumption</b><br>a. (natural gas, gasoline, diesel, propane, oil etc.) per capita (resid/commer/indust)  | x                          | yes                     | yes                | included                         | • Additionally report in Tonnes of CO <sub>2</sub> Equivalent Emitted per GJ Energy Consumed by Sector. Provides an indication of the impact of cleaner energy sources.   |

| Indicators Reviewed<br>for 2 <sup>nd</sup> Edition  | 1 <sup>st</sup><br>Edition | 2 <sup>nd</sup> Edition |                    |                                  | Commentary and Recommendations<br>for Future Editions   |
|---|----------------------------|-------------------------|--------------------|----------------------------------|---|
|   |                            | Data<br>Received        | Survey<br>Received | Current<br>Status                |   |
| WASTE AND RESOURCE MANAGEMENT   |                            |                         |                    |                                  |   |
| <b>Waste Reduction and Hazardous Waste</b><br>a. Percent of city's waste stream diverted<br>b. Hazardous wastes disposed at depot<br>c. Solid waste production (residential, industrial, institutional) | x<br>x                     | yes<br>yes<br>yes       | yes<br>yes<br>yes  | included<br>included<br>included | • Solid Waste Production by Sector should be included to allow a better understanding of the contribution of each sector.   |
| OUTDOOR AIR QUALITY   |                            |                         |                    |                                  |   |
| <b>Air Quality (outdoor)</b><br>a. Number of ozone criteria exceedances<br>b. Greenhouse Gas (GHG) emissions  | x                          | no<br>yes               | yes<br>yes         | included<br>included             | • Airborne pollen counts are not measured anywhere in Guelph.<br>• Including GHG's, particulate matter and hospital admissions will provide a more comprehensive understanding of air pollution issues and their impact on our health (as opposed to just measuring smog in O <sub>3</sub> exceedances).  |
| EMPLOYMENT TRENDS   |                            |                         |                    |                                  |   |
| <b>Labour Force in Employment</b><br>a. Percent of labour force over age 15 with employment   | x                          | yes                     | yes                | included                         | • Measures could be combined into one indicator for employment. Consider value of duplication. Employment, unemployment and rate of participation are recorded in the <i>Wellington-Dufferin-Guelph Community Well Being Report</i> (1999).   |
| <b>Income Level</b><br>a. Percent of families with low income (below living wage)<br>b. Median family income  | x<br>x                     | no<br>no                | no<br>no           | included<br>included             | • Measures could be combined into one indicator. Consider value of duplication. Income level is recorded in the <i>Wellington-Dufferin-Guelph Community Well Being Report</i> (1999). Data availability may be a concern.   |
| <b>Post-Secondary Qualifications</b><br>a. Labour Force with Post-Secondary Qualifications  | x                          | no                      | no                 | included                         | • Measures could be combined into one indicator. New measures are supplemental to the original indicator. Data availability may be a concern.   |
| STABLE HEALTHY FAMILIES   |                            |                         |                    |                                  |   |
| <b>Children in Care and Domestic Disputes</b><br>a. Number of children in care of family and children's services<br>b. Family Preservation<br>c. Spousal assault/Domestic disputes occurrences          | x<br>x<br>x                | yes<br>no<br>no         | yes<br>no<br>no    | included<br>excluded<br>included | • Add "child protection cases" for those children requiring "protection" as opposed to "care". Data is no longer collected for Family Preservation and Spousal assault occurrences. Consider other measures such as mental health services or those including positive indicators that measure family assets/strengths, not just the absence of problems. |

| Indicators Reviewed<br>for 2 <sup>nd</sup> Edition  | 1 <sup>st</sup><br>Edition | 2 <sup>nd</sup> Edition |                    |                      | Commentary and Recommendations<br>for Future Editions   |
|---|----------------------------|-------------------------|--------------------|----------------------|---|
|   |                            | Data<br>Received        | Survey<br>Received | Current<br>Status    |   |
| <b>Public Safety and Security</b><br>a. Number of robberies, assault and fires  | x                          | yes                     | yes                | included             | <ul style="list-style-type: none"> <li>Need to work with the Police Services and Fire Department to establish measured criteria based on population. Separate Police measures from Fire measures.</li> </ul>  |
| <b>Personal Health</b><br>a. Potential years of life lost by major disease groups (heart, cancer, etc.)<br>b. Leading causes of death (percent of total)  | x<br>x                     | no<br>no                | no<br>no           | included<br>included | <ul style="list-style-type: none"> <li>Data on “potentials” is not collected locally and is somewhat subjective. Need to work with the hospitals to get better tools to measure the overall health of the people in the community. Exclude from future editions of the SOSR.</li> <li>Measures could be combined into one indicator. Consider value of duplication. Low birth weight infants and injuries among older adults are recorded in the <i>Wellington-Dufferin-Guelph Community Well Being Report</i> (1999).</li> </ul> |
| <b>COMMUNITY CAPACITY BUILDING</b>  |                            |                         |                    |                      |   |
| <b>Recreation Facilities</b><br>a. Number recreation facilities available to the public   | x                          | no                      | no                 | included             | <ul style="list-style-type: none"> <li>Need to incorporate the utilization of both public and private facilities and include their designed capacity or actual use. Revise in next edition.</li> </ul>  |
| <b>Environmental Education</b><br>a. Amount of class time on environment and ecology per pupil (grade 1-13)   | x                          | no                      | no                 | included             | <ul style="list-style-type: none"> <li>The new curriculum encourages the integration environmental considerations throughout. Indicator is difficult to measure and depends on the interest of individual teachers. Revise in future editions of the SOSR; consider other indicators.</li> </ul>  |
| <b>Arts and Heritage—Cultural Development</b><br>a. Staff and class time devoted to instruction and appreciation of the arts and drama in primary schools<br>b. Participation rate in art and music clubs in secondary school | x<br>x                     | no<br>no                | no<br>no           | included<br>included | <ul style="list-style-type: none"> <li>The new curriculum has shifted its focus away from less academic subjects such as art, drama, music and athletics. Data should be interpreted carefully Revise in future editions of the SOSR; consider other indicators.</li> </ul>   |
| <b>COMMUNITY COHESION</b>   |                            |                         |                    |                      |   |
| <b>Local Government Participation</b><br>a. Percent of eligible municipal voters casting ballots  | x                          | yes                     | yes                | included             | <ul style="list-style-type: none"> <li>Not really a measure of citizen involvement. Voter participation is difficult to interpret. Increased voting can reflect disapproval of current conditions. Revise in future editions of the SOSR; consider other indicators.</li> </ul>   |

| Indicators Reviewed<br>for 2 <sup>nd</sup> Edition                        | 1 <sup>st</sup><br>Edition | 2 <sup>nd</sup> Edition |                    |                   | Commentary and Recommendations<br>for Future Editions   |
|---|----------------------------|-------------------------|--------------------|-------------------|---|
|   |                            | Data<br>Received        | Survey<br>Received | Current<br>Status |   |
| <b>Community Concern</b><br>a. Dollars contribution per capita United Way | x                          | yes                     | yes                | included          | <ul style="list-style-type: none"> <li>Questionable measure but should be maintained until a better definition is found. Often reflects the overall strength of the economy and/or the work of the organizers.</li> </ul> |

*During the review of the current indicators (see above), several new indicators were also reviewed for future consideration.  
The following table summarizes the findings of this review process.*

**Table 2: Review of New Indicators**

| New Reviewed Indicators   | Focus Area                | Data<br>Received | Survey<br>Received | Suggested Status<br>for Next Edition | Commentary  |
|---|---------------------------|------------------|--------------------|--------------------------------------|---|
| Number of applicants referred by the volunteer centre   | Community Cohesion        | no               | no                 | consider                             | Data are provincial and national and do not reflect other significant forms of volunteerism. However, other locally relevant data are likely to become available.   |
| Participation rate for environmentally oriented activities (river cleanups, commuter challenge, neighbourhood watch, bird counts, etc.) | Community Cohesion        | no               | no                 | consider                             | No specific indicator has been identified. Consider measures that include all sectors, are collected annually and can have comparisons made to other communities (e.g., Commuter Challenge or Speed River Cleanup). |
| Percent of 18 year olds receiving high school diplomas  | Employment Trends         | no               | no                 | consider                             | Measures could be combined into one indicator. New measures are supplemental to the original indicator. Data availability may be a concern.   |
| Number of adult education diplomas granted  | Employment Trends         | no               | no                 | consider                             | Indicator is limited as does not show automobile use (km travelled), however in combination with other indicators would give better picture of overall automobile reliance and use.                                 |
| Number of cars per capita   | Integrated Transportation | no               | no                 | consider                             | Indicator is limited as does not show automobile use (km travelled), however in combination with other indicators would give better picture of overall automobile reliance and use.                                 |
| Transportation costs per year (commuting, public, commerce)   | Integrated Transportation | no               | no                 | exclude                              | Data availability is questionable. Indicator is of limited use.   |



| <b>New Reviewed Indicators</b>   | <b>Focus Area</b>                                     | <b>Data Received</b> | <b>Survey Received</b> | <b>Suggested Status for Next Edition</b> | <b>Commentary</b>   |
|--|---|----------------------|------------------------|--|---|
| Kilometres of bike/walking trails created  | Integrated Transportation OR Land Use and Development | yes                  | yes                    | consider                                 | Indicator is limited in relation to actual use of alternative modes of transportation. It might be a better indicator for recreation or healthy living.   |
| Number of housing starts in downtown area  | Land Use and Development                              | yes                  | yes                    | consider                                 | Data should show trend of downtown redevelopment, but should have a consistent definition of “downtown” applied.  |
| Brownfield (unreclaimed vs. reclaimed) in hectares   | Land Use and Development                              | no                   | yes                    | include                                  | The City has a draft strategy but no data were available at this time. Include in next edition.   |
| Developed residential land in hectares   | Land Use and Development                              | yes                  | yes                    | consider                                 | City collects this data but value of measure requires more input. Residential property is represented in relative size of property assessment. Consider in next edition.  |
| Cumulative area of Significant Natural Areas protected                                     | Land Use and Development                              | no                   | yes                    | exclude                                  | Cumulative area is already included in the measure of natural open space.   |
| Tree planting (number of trees/year or hectares planted)                                   | Land Use and Development                              | yes                  | yes                    | consider                                 | The Recreation and Works departments collect data on trees planted and trails created. These measures should be reviewed and possibly included in the inventory of open space.  |
| Average inhalable particulate matter concentration   | Outdoor Air Quality                                   | no                   | yes                    | include                                  | Including GHG’s, particulate matter and hospital admissions will provide a more comprehensive understanding of air pollution issues and their impact on our health (as opposed to just measuring smog in O <sub>3</sub> exceedances). |
| Airborne pollen counts and the source of these materials                                   | Outdoor Air Quality                                   | no                   | yes                    | consider                                 | Currently airborne pollen counts are not measured anywhere in Guelph.   |
| Hospital admissions for breathing disorders and other environmentally triggered conditions | Outdoor Air Quality                                   | no                   | no                     | include                                  | Including GHG’s, particulate matter and hospital admissions will provide a more comprehensive understanding of air pollution issues and their impact on our health (as opposed to just measuring smog in O <sub>3</sub> exceedances). |
| Shelter occupancy rate   | Stable Healthy Families                               | no                   | no                     | exclude                                  | Need to include other measures such as number of “homeless,” “food programs,” “children’s programs,” and “independent living programs.” Data may be dispersed in several cases.   |

| New Reviewed Indicators                                     | Focus Area   | Data Received | Survey Received | Suggested Status for Next Edition | Commentary   |
|---|--|---------------|-----------------|-----------------------------------|--|
| Number of low birth weight babies as percent of live births | Stable Healthy Families                              | no            | no              | consider                          | Measures could be combined into one indicator. Consider value of duplication. Low birth weight infants and injuries among older adults are recorded in the <i>Wellington-Dufferin-Guelph Community Well Being Report</i> (1999). |
| Hospitalization rate for falls by persons 65+ years         | Stable Healthy Families                              | no            | no              | consider                          |  |
| Number of pedestrians and cyclists injured by vehicles      | Stable Healthy Families OR Integrated Transportation | yes           | yes             | consider                          | Indicator reflects on integrated transportation systems. Also related to street safety for non-car travellers.   |
| Pesticides used by the City: type and amount                | Land Use and Development                             | no            | yes             | include                           | The City collects pesticide data but they were not provided at this time. An assessment of private use is underway. Include in next edition.   |
| Noise pollution   | Outdoor Air Quality                                  | no            | no              | consider                          | Specific indicator would need to be developed.   |

## APPENDIX B: DATA PROVIDER SURVEY

| GPSC State of Sustainability Scoping Survey |                    |
|---|--------------------|
| Issue Category                              | Proposed Indicator |
|   |                    |
|   |                    |
|   |                    |
|   |                    |

1. Does your organization currently collect information that contributes to this issue category? If not, does your organization know of an organization or contact that does?
  
2. What is the primary source(s) of the data?
  
3. In what format is this data recorded and how often? (e.g.: Excel, Access, Lotus, daily, weekly, monthly)<sup>1</sup>
  
4. What is the geographic scope of the data? (e.g.: city, region, province)
  
5. Does your organization have a target or goal that is used to gauge an acceptable degree of change in this category?
  
6. To what extent does your organization feel the above proposed indicator(s)/metric(s) are an effective measure of change in this issue category? What are the strengths or weaknesses?

7. Are there other indicator(s)/metric(s) that your organization can suggest that would be appropriate for measuring change in this issue category?
  
8. Is there any information the GPSC should be aware of when using this data for the SOSR?
  
9. Additional comments and suggestions are more than welcome.

I, the undersigned, authorize the Guelph Green Plan Steering Committee to use this data for the purposes outlined in the attached cover letter.

I hereby request the Guelph Green Plan Steering Committee to treat this data as confidential and refrain from identifying the source in the acknowledgements and/or references section of the report.

Yes ☐
No ☐

Organization: \_\_\_\_\_

Name: \_\_\_\_\_

Date: \_\_\_\_\_

\_\_\_\_\_  
 Signature

<sup>1</sup> If possible, please provide us with data starting January 1<sup>st</sup> 1998 to now.

## **APPENDIX C: MEASURES OF PROGRESS – SUMMARY OF TRENDS 1998 AND 2001**

*NOTE: This chart is for gross comparison only. In some cases, the metrics used for each indicator may have changed from 1998 to 2001 (see Appendix A). Please consult the 1998 SOSR for details on the metrics used.*

| <b>INDICATOR</b>                                  | <b>1998 FINDING</b>         | <b>2001 FINDING</b> |
|---|-----------------------------|---------------------|
| <b>INDICATORS OF ENVIRONMENTAL SUSTAINABILITY</b> |                             |                     |
| <b>Land Use and Development</b>                   |                             |                     |
| Open Space and Natural Corridors                  | Hard to Say                 | Hard to Say         |
| Ecological Sensitivity and Habitat Protection     | Hard to Say                 | Hard to Say         |
| Land Management                                   | Making Progress             | Making Progress     |
| Balanced Development                              | Needs Improvement           | Needs Improvement   |
| <b>Integrated Transportation</b>                  |                             |                     |
| Automobile Travel                                 | Needs Improvement           | Needs Improvement   |
| Transit Ridership                                 | n/a                         | Making Progress     |
| <b>Water Conservation</b>                         |                             |                     |
| Ground Water Quality                              | Hard to Say                 | Making Progress     |
| Water Consumption                                 | Hard to Say                 | Making Progress     |
| Water Supply Reserve Capacity                     | Hard to Say                 | Hard to Say         |
| Impact on Speed River System                      | Making Progress/Hard to Say | Making Progress     |
| Surface Water Quality                             | n/a                         | Needs Improvement   |
| <b>Energy Conservation</b>                        |                             |                     |
| Energy Consumption                                | Hard to Say                 | Needs Improvement   |
| <b>Waste and Resource Management</b>              |                             |                     |
| Waste Management and Hazardous Waste              | Making Progress             | Needs Improvement   |
| <b>Outdoor Air Quality</b>                        |                             |                     |
| Ozone and Greenhouse Gas Emissions                | Hard to Say                 | Hard to Say         |

| INDICATOR   | 1998 FINDING      | 2001 FINDING      |
|---|-------------------|-------------------|
| <b>INDICATORS OF SOCIAL AND ECONOMIC SUSTAINABILITY</b> |                   |                   |
| <b>Employment Trends</b>                                |                   |                   |
| Labour Force in Employment                              | Needs Improvement | Hard to Say       |
| Income Level  | Hard to Say       | Needs Improvement |
| Post-secondary Qualifications                           | Making Progress   | Making Progress   |
| <b>Stable Healthy Families</b>                          |                   |                   |
| Children in Care  | Hard to Say       | Needs Improvement |
| Public Safety and Security                              | Making Progress   | Hard to Say       |
| Personal Health   | Needs Improvement | No New Data       |
| <b>Community Capacity Building</b>                      |                   |                   |
| Recreation Facilities                                   | Hard to Say       | No New Data       |
| Environmental Education                                 | Needs Improvement | No New Data       |
| Arts and Heritage-Cultural Development                  | Needs Improvement | No New Data       |
| <b>Community Cohesion</b>                               |                   |                   |
| Local Government Participation                          | Needs Improvement | Hard to Say       |
| Community Concern                                       | Needs Improvement | Hard to Say       |

## **APPENDIX D: USEFUL WEBSITES AND OTHER DATA SOURCES**

### **Reports:**

#### ***Guelph's Green Plan...A First Step Towards Environmental***

##### ***Sustainability***

July 1994

#### ***Guelph State of Sustainability Report***

Prepared for the City of Guelph by the Green Plan Steering Committee, November 1998

#### ***Guelph Residents' Environmental Handbook***

Authored by the City of Guelph, Environmental Advisory Committee, coordination by David Charlton, 2000 (copyright City of Guelph, ESG International Inc.)

#### ***The Wellington-Dufferin-Guelph Community Well Being Report 1999—Phase I: Trends***

United Way Community Services of Guelph and Wellington

### **Websites (Data Providers & Referenced in Text):**

- **City of Guelph**  
<http://www.city.guelph.on.ca>
- **Global Reporting Initiative**  
<http://www.globalreporting.org>
- **Grand River Conservation Authority**  
<http://www.grandriver.ca>
- **Ministry of the Environment**  
<http://www.ene.gov.on.ca/>
- **Statistics Canada**  
<http://www.statcan.ca/>
- **United Way of Guelph and Wellington**  
<http://www.unitedwayguelph.com>
- **Wellington Catholic School Board**  
<http://www.wellingtoncssb.edu.on.ca>
- **Federation of Ontario Naturalists**  
<http://www.ontarionature.org/>
- **Government of Canada**  
<http://environmentandresources.gc.ca/>
- **International Council for Local Environmental Initiatives**  
<http://www.iclei.org>
- **EnerGuide for Houses**  
<http://oee.nrcan.gc.ca>

### **Other Website Resources:**

- **UNCSD-United Nations Commission on Sustainable Development**

<http://www.un.org/esa/sustdev/isd.htm>

Twenty-one countries have developed a core set of indicators for national development in cooperation with about 30 organizations within the UN.

- **Sustainability Measures**

<http://www.sustainablemeasures.com/>

Suggests indicators that measure progress toward a sustainable economy, society and environment.

- **Sustainable Community Indicators Program**

<http://www.ec.gc.ca/scip-pidd/>

The Sustainable Community Indicators Program is Windows-based software and web site developed by Environment Canada to help communities measure and monitor sustainable development.

- **Federation of Canadian Municipalities  
Quality of Life Reporting System**

<http://www.fcm.ca/>

Includes eight indicators of community wellbeing in Canada, mostly from a socio-economic perspective.

## **APPENDIX E: POPULATION DATA**

| <b>Year</b> | <b>City Population<br/>(Including Gazer-Mooney Subdivision)</b> | <b>University of<br/>Guelph</b> | <b>Total Population</b> |
|-------------|---|---------------------------------|-------------------------|
| 1994        | 93,574  | 7,318                           | 100,892                 |
| 1995        | 94,864  | 7,318                           | 102,182                 |
| 1996        | 96,947  | 7,318                           | 104,265                 |
| 1997        | 99,247  | 7,318                           | 106,565                 |
| 1998        | 102,247   | 7,318                           | 109,565                 |
| 1999        | 104,973   | 7,318                           | 112,291                 |
| 2000        | 107,954   | 7,318                           | 115,272                 |
| 2001        | 111,046   | 7,318                           | 118,364                 |

Population data were provided by the City of Guelph, Environment and Transportation Services.



## Summary of Green Plan Goals and Objectives

*(July 1994 - summary - does not contain exact issues, objectives and suggestions)*

| Goals   | Objectives   | Suggestion Checklist   |
|---|--|--|
| <b>Land Use and Development</b>   |  |  |
| <ol style="list-style-type: none"> <li>1. Make planning process user-friendly and coordinated among stakeholders</li> <li>2. Ensure responsible management in the development of land use plans</li> <li>3. Integrate land uses to balance community structure and resource efficiency</li> </ol> | <ul style="list-style-type: none"> <li>• Improve information/education</li> <li>• Encourage pro-active public input</li> <li>• Balance suburban development with infill</li> <li>• Encourage community based initiatives</li> <li>• Maintain and protect open space</li> <li>• Encourage sensitive development practices</li> <li>• Promote compatible development practices</li> <li>• Improve accessibility to community services</li> <li>• Improve municipal planning process</li> </ul> | <ul style="list-style-type: none"> <li>↑ Coordinate planning approach</li> <li>↑ Increase coordination between departments</li> <li>↑ Encourage city-wide secondary planning</li> <li>↑ Inventory existing environmental resources and identify significant areas</li> <li>↑ Develop comprehensive library</li> </ul>  |
| <b>Water</b>  |  |  |
| <ol style="list-style-type: none"> <li>1. Protect, preserve and conserve water supply</li> <li>2. Protect and enhance water quality</li> </ol>  | <ul style="list-style-type: none"> <li>• Ensure adequate water supply</li> <li>• Encourage wise water management</li> <li>• Improve information and education efforts</li> <li>• Develop short and long-term strategies</li> <li>• Protect inherent value of natural environment</li> <li>• Meet or exceed water quality criteria</li> </ul>   | <ul style="list-style-type: none"> <li>↑ Meter all water uses</li> <li>↑ Develop programs to reduce once through use</li> <li>↑ Investigate potential use of grey water</li> <li>↑ Encourage use of water efficient equipment</li> <li>↑ Assess need to upgrade Plumbing Code</li> <li>↑ Promote alternative landscaping techniques</li> <li>↑ Promote methods to reduce lawn watering</li> <li>↑ Consider use of cisterns</li> <li>↑ Develop incentive programs to conserve water</li> <li>↑ Encourage water audits for industry</li> <li>↑ Encourage industry and City cooperation</li> <li>↑ Promote alternatives to water softeners</li> </ul> |

| Goals  | Objectives   | Suggestion Checklist  |
|--|--|---|
| <b>Energy</b>  |  |   |
| <ol style="list-style-type: none"> <li>1. Reduce residential use by 10%, on a per capita basis</li> <li>2. Reduce commercial and institutional use by 10%, on a per square foot basis</li> <li>3. Reduce industrial use by 8% on a per unit produced basis</li> </ol>  | <ul style="list-style-type: none"> <li>• Increase energy efficiency of housing stock</li> <li>• Increase renewable resource technology /application</li> <li>• Encourage increased energy efficiency in all sectors</li> <li>• Improve accessibility of information and programs</li> <li>• Consider implications of land use and site planning</li> <li>• Support changes to regulations at provincial level</li> <li>• Promote alternate methods of transportation</li> <li>• Support technologies that improve fuel efficiency</li> </ul> | <ul style="list-style-type: none"> <li>↑ Create an energy rating system for construction</li> <li>↑ Make R2000 certification a minimum requirement for residential construction</li> <li>↑ Consider options for upgrading heating systems</li> <li>↑ Provide advice to owners on reduction strategies</li> <li>↑ Assess energy implications to development</li> <li>↑ Provide advice to owners on landscape strategies</li> <li>↑ Develop civic-multi-sectoral awards</li> <li>↑ Consider options for solar heating of pools</li> <li>↑ Incorporate energy knowledge into curriculums</li> <li>↑ Improve programs to the IC&amp;I sector</li> </ul>                         |
| <b>Transportation</b>  |  |   |
| <ol style="list-style-type: none"> <li>1. Reduce environmental impacts including emissions, noise, deaths and injuries, land use and damage to natural systems</li> <li>2. Increase accessibility and attractiveness of alternative transportation</li> <li>3. Integrate public into planning process at all stages</li> <li>4. Improve integration of efforts between City, provincial and federal departments</li> </ol> | <ul style="list-style-type: none"> <li>• Solicit and use public input at all stages of planning</li> <li>• Improve access for all modes of transportation</li> <li>• Reduce impact of vehicular inter-city through traffic</li> <li>• Improve safety of alternative transportation modes</li> <li>• Consider environmental impacts and accountability</li> <li>• Improve integration of alternative transportation methods within City departments</li> </ul>  | <ul style="list-style-type: none"> <li>↑ Implement Transportation Advisory Committee</li> <li>↑ Develop a carbon dioxide planning target</li> <li>↑ Assess and compare all environmental impacts</li> <li>↑ Improve bicycle, pedestrian and mass transit access to University</li> <li>↑ Modify intersection designs to be more pedestrian friendly</li> <li>↑ Encourage increased pedestrian travel in core</li> <li>↑ Increase quality of bicycle safety</li> <li>↑ Improve public transport system</li> <li>↑ Reduce impacts associated with trucks</li> <li>↑ Maximize use of Guelph Junction Railway</li> <li>↑ Redirect traffic to improve intercity links</li> </ul> |

| Goals  | Objectives  | Suggestion Checklist   |
|--|---|--|
| <b>Waste Management</b>  |   |  |
| <ol style="list-style-type: none"> <li>1. Minimize and eliminate need for landfills through 3R program</li> <li>2. Shift community attitudes toward waste generation/disposal</li> <li>3. Minimize environmental impacts of landfill use</li> <li>4. Ensure proper disposal and awareness of household hazardous waste</li> <li>5. Create financially self-sufficient waste management system</li> <li>6. Increase public involvement</li> </ol> | <ul style="list-style-type: none"> <li>• Improve public input and education programs</li> <li>• Improve viability of waste management alternatives</li> <li>• Increase accessibility of 3R programs to all sectors</li> <li>• Continue work with each sector to reduce waste</li> <li>• Achieve best management and disposal of household hazardous waste</li> <li>• Minimize environmental degradation of landfills</li> <li>• Determine and assign true costs of waste management to users</li> </ul> | <ul style="list-style-type: none"> <li>↑ Re-examine benefits of multi-stream waste collection</li> <li>↑ Provide more facilities for recycling</li> <li>↑ Assess expanding items acceptable for recycling</li> <li>↑ Place recycle bins next to public trash cans</li> <li>↑ Establish another recycling drop-off depot</li> <li>↑ Help stores to make consumers reduce waste</li> <li>↑ Establish salvage facility for used goods</li> <li>↑ Expand current goods exchange day</li> <li>↑ Assist industry on waste and packaging audits</li> <li>↑ Expand publicity programs in IC&amp;I sectors</li> <li>↑ Consider banning certain materials from landfill</li> <li>↑ Endorse programs in the interest of recycling</li> <li>↑ Provide all households with composting ability</li> <li>↑ Expand landfill bans to include yard waste</li> <li>↑ Create waste reduction incentives for commercial and industrial sectors</li> <li>↑ Evaluate university's potential for composting</li> <li>↑ Develop safety and feasibility for incineration</li> <li>↑ Expand paint exchange program</li> <li>↑ Increase convenience of HHW disposal</li> <li>↑ Increase information services to HHW</li> <li>↑ Continue to monitor old landfills</li> <li>↑ Continue with Landfill Search Committee</li> <li>↑ Implement a user pay system for waste</li> <li>↑ Establish role in recycling market</li> <li>↑ Formalize public consultation process</li> </ul> |

## Chapter 1

# Introduction

### Why Guelph Needs a Green Plan

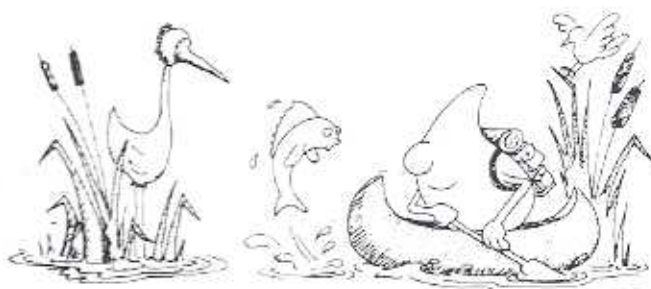
This Green Plan was not created because the environment is fashionable, or because a green city is nicer than a grey one. Ensuring an environmentally sustainable future in Guelph is vital; the water supply depends on it, jobs depend on it, and life itself depends on maintaining the cleansing, productive and life supporting nature of the environment.

Trees, wetlands and other elements that occur naturally in the environment help supply oxygen, purify water, provide protection from windstorms and floods, and moderate extreme temperatures. Ultimately, biological and ecological laws must be respected, or human health will be jeopardized.

Preservation of the natural environment is important to a healthy economy. Trees can significantly reduce heating and cooling costs

when they are appropriately located. Property values and tax revenues are known to be higher for properties located next to greenbelts. Guelph's Recreation and Parks Master Plan acknowledges that ample open space has direct economic benefits for local business, both through tourism revenue and because businesses are attracted to greener cities.

In addition to the life-support and economic reasons for green planning, there are ethical reasons. Many things found in nature, like the song of a bird in the downtown area, may have no obvious utilitarian function, and their value may be impossible to quantify, yet they deserve acknowledgment and protection for their intrinsic value and because they maintain and improve our quality of life.



#### In this Chapter....

|   | Page |
|---|------|
| Why Guelph Needs a Green Plan .....   | 1    |
| Green Planning in Context .....   | 2    |
| What is the Green Plan .....  | 3    |
| The Green Plan's Focus: Sustainability of the Local Natural Environment ..... | 3    |
| Guelph's Strategic Green Planning Framework .....                             | 4    |
| Objectives of the Green Plan .....  | 5    |
| A General Rule .....  | 5    |
| Implementation Principles for Environmental Sustainability .....              | 6    |

For the Guelph community to move towards environmental sustainability, we must all work together as individuals and as a community, at a number of different levels; in our awareness, our behavior and our decision making. The Green Plan was developed to help guide that forward movement.

The methodology that was used to develop the Green Plan, including details on the community involvement program and the writing process, are included in Chapter 4.



## Green Planning in Context

There is growing awareness of the need to consider the environment when making plans or decisions at all levels, from personal choices made in the home or community decisions made by a municipality, through to regional, national and global plans.

The Brundtland Commission (the World Commission on Environment and Development, 1987) set a global objective of aiming for sustainable development, which it defined as development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

Canada's Green Plan (1990) identified the need to build upon our economic strengths in harmony with our environment. The first goal of Canada's Green Plan is to secure for current and future generations a safe and healthy environment, together with a sound and prosperous economy.

Research towards environmental sustainability has largely been carried out at the national and international levels. There is little direction available for municipalities, such as Guelph, that want to take action and move towards sustainable development.

Guelph's Official Plan, adopted in 1989, includes the following comments in its vision statement:

*The city's future depends on a careful balance of yesterday's legacy, today's needs and tomorrow's vision. By respecting the history that enriches local architecture, preserving the nature that adorns the landscape, and promoting an atmosphere of innovation and creativity, that balance will be achieved.*

Guelph's Strategic Plan, adopted in 1993, places further emphasis on environmentally responsible planning, with this vision:

*Guelph is an innovative, caring community, proud of its history, committed to its natural environment and excited about its future. We will:*

- *be responsive to the needs of our citizens;*
- *build upon our diversified economic base and promote new technologies;*
- *ensure controlled quality growth;*
- *maintain strong municipal management practices; and*
- *respect and protect our environment by preserving our natural, cultural and architectural heritage.*

While these statements are important, they don't provide any direction on how Guelph can move towards environmental sustainability, or what that could mean for the Guelph community.

The City realizes that there is a need to include environmental concerns in the planning process more effectively. In the Strategic Plan, the City commits itself to the concept of a Green Plan by stating:

*The City will adhere to the best of its ability, to the established principles, goals and targets of the Green Plan.*

Also, one of the objectives of the Strategic Plan, listed under "protecting our unique environment and heritage", is:

*to work towards establishing appropriate actions for a municipal Green Plan, in consultation with community groups.*

## What is the Green Plan?

The Green Plan is the first step in a strategic planning process (see Figure 1) that will move us towards our vision of environmental sustainability, in harmony with our economic and social development. It is a set of environmental Challenges, Goals and Objectives identified by the Guelph community, together with suggestions from the public on how to achieve them, and an implementation process for evaluating and acting on those suggestions. The Green Plan will help the Guelph community plan for a better environment, and will help secure the future sustainability of the City.

There is a need to address matters of economic development, poverty, social justice and humanity in Guelph. However, the primary focus of this Green Plan is the natural environment and its relationships with our built environment and our activities. As a result this document takes on the narrower task. Other community, provincial and federal programs exist or need to be developed to address the needs for improved economic performance and the social problems of equity and well-being. City Council has recognized that the time has come to devote an equal amount of effort and attention to promoting the sustainability of the natural environment that is affected by all community activities in the City.

The Green Plan uses the term “sustainability” as a short form for “environmental sustainability in harmony with our economic and social development”. The Green Plan strives to reduce the net impact of the community’s social and economic development on the environment, and to ensure that the ecosystem stays within its ability to renew itself from negative natural and human impacts.

The Green Plan is supported by the Strategic Plan for the City of Guelph - a local plan. The City of Guelph and the community have responsibilities and opportunities defined by provincial legislation, and to some extent by the City’s political boundaries.

Although the Green Plan concentrates on local action, the Guelph community must still consider the ethical and moral implications of its decisions on the rest of the province and the rest of the world. The Green Plan recognizes that environmental interactions occur beyond political boundaries, and that larger ecosystem interconnections have to be considered. However, the scope of this Green Plan is limited by the authority available to the City and the community to affect nearby areas.

## The Green Plan’s Focus - Sustainability of the Local Natural Environment

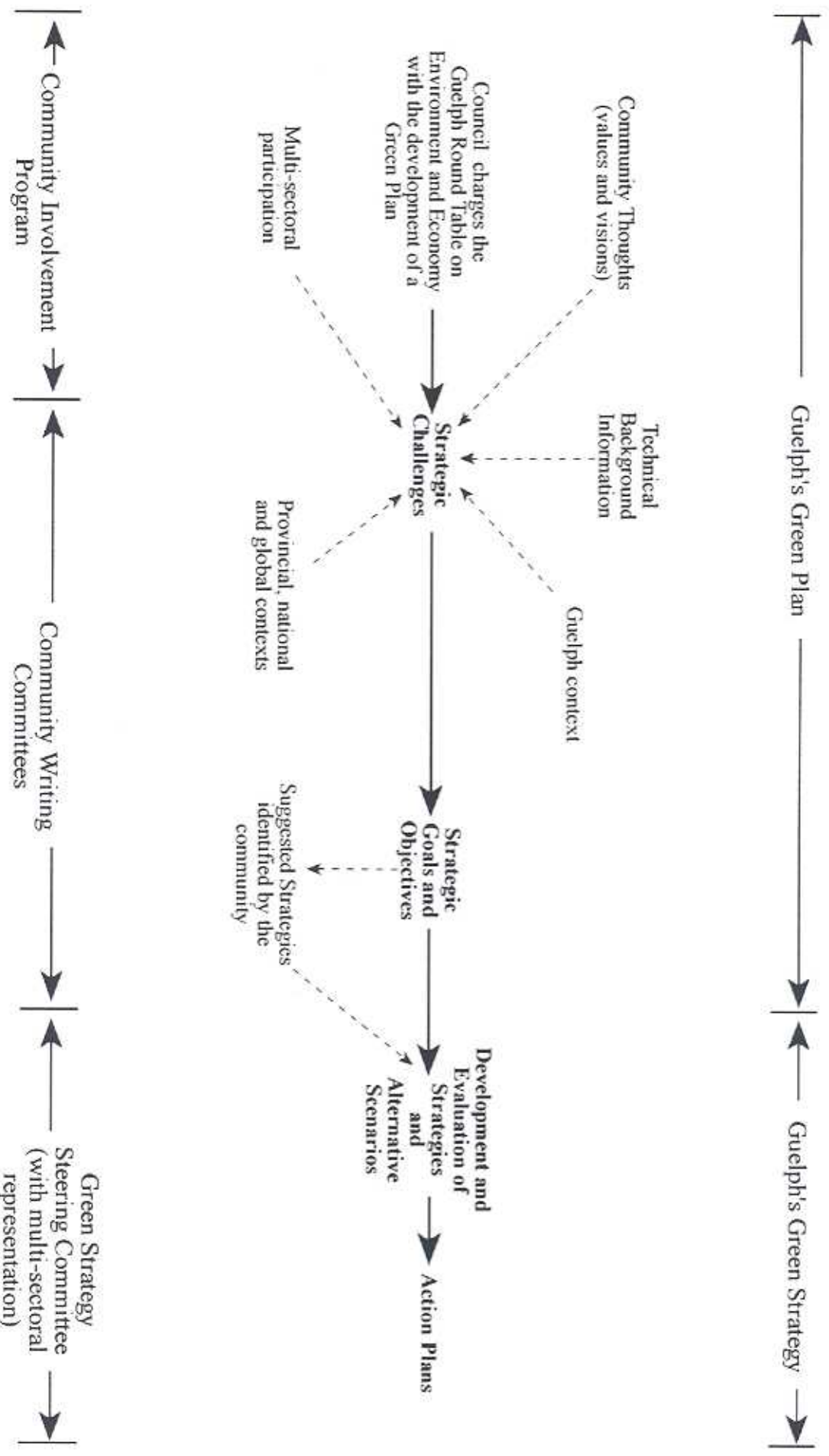
Early in the development of the Green Plan, many “green” terms were used interchangeably or without clear definition. Phrases like “sustainable development”, “growth”, “healthy communities” and “ecosystem planning” were used without fully understanding what they meant in the context of a Green Plan for Guelph.

After much discussion, the focus of the Guelph Green Plan was defined as “environmental sustainability” rather than the much broader scope of “sustainable development” that was originally proposed. This choice was deliberate, and it is practical.

Environmental sustainability is only one part of the broader concept of sustainable development.



**Figure 1**  
**Guelph's Strategic Green Planning Framework**



## Green Plan Objectives

The following Green Plan objectives were developed to help Guelph achieve its environmental vision:

- Integrate the concept of environmental sustainability in all community activities, using an ecosystem approach.
- Involve all sectors of the community, including residents, businesses and local government, and provide them with a guide for considering environmental sustainability when making decisions.
- Encourage stronger relationships with outside communities and agencies, to promote cooperation in achieving environmental sustainability.
- Focus programs and projects on local level priorities, while recognizing the need to be considerate of regional, national and global linkages.
- Support informed decision making with education, information and public consultation programs.
- Provide leadership to local citizens and other communities by example.

## A General Rule

The community looks to the City for good government. While everyone has a role to play in achieving environmental sustainability, the City should provide leadership. City Council and City departments need to consider the environmental effects of all actions and activities, from day-to-day activities through to major project proposals, before decisions are made. The potential environmental effects should be listed and described, including both the damages and the benefits. The proposal should describe the methods that could be used to prevent, reduce or offset the potential harmful effects. Furthermore, the persons, activities or systems that will be harmed or benefited by the decision should be clearly identified.

This general rule does not require a full environmental impact assessment for all projects and programs. The level of effort should reflect the size of the project and the expected impacts. It is vital, however, that all members of Council and City staff develop the habit of thinking about the effects of their actions on the environment, both in their day-to-day activities and in their decisions about longer term projects. By providing a good example, it is hoped that all sectors of the community, including institutions, businesses and individuals, will follow this lead.

Implementation of the Green Plan is discussed in more detail in Chapter 3.



## **Implementation Principles for Environmental Sustainability**

The development and implementation of the Green Plan is guided by these interrelated principles:

### ***Integration of environmental considerations in all decisions***

- Incorporate environmental considerations in all decision making, in balance with economic and social considerations.
- Base decisions on factual information and ethical principles, with regard for community desires.
- Promote decision making processes that are pro-active rather than reactive.
- Try to reduce potential negative impacts and enhance environmental quality.

### ***Stewardship***

- Assume responsibility for the environment.
- Manage the environment for the benefit of present and future generations.

### ***Enhancement, Rehabilitation and Reclamation***

- Restore and improve damaged or impaired environments.

### ***Prevention***

- Anticipate environmental ramifications during the planning and decision making processes, to minimize the potential for environmental impacts.
- Develop systematic monitoring programs to identify potential environmental problems as soon as possible.
- Develop programs to mitigate inevitable damage.

### ***Conservation***

- Make wise and efficient use of renewable and nonrenewable resources.
- Identify and maintain essential ecosystems, biological diversity and other life support systems of the environment.
- Promote long-term sustainable development that maximizes the benefits of the natural resource base without depleting it.

### ***Full Cost Accounting***

- Ensure that the actual costs or benefits of resource use are reflected in the pricing of goods and services.

## Chapter 2

# The Environmental Issues

### Introduction

Five main environmental issue areas were explored during the Green Plan's Community Involvement Program and the subsequent development of the Green Plan document. These issue areas were identified as:

- Land Use and Development
- Water
- Energy
- Transportation
- Waste Management

A separate writing committee was created to deal with each environmental issue area. Each committee explored the general nature of their issue area, and then used the input received during the Community Involvement Program as a basis for the development of an overall Challenge, as well as Goals and Objectives for their issue area. They also sifted through the many suggestions for action made by the community, and identified those suggestions that could help meet the Goals and Objectives. Details on the writing process are provided in Chapter 4, in Part II of the Green Plan.

#### In this Chapter....

|                                | Page |
|--------------------------------|------|
| Introduction .....             | 7    |
| Environmental Issue Sections   |      |
| Land Use and Development ..... | 9    |
| Water .....                    | 24   |
| Energy .....                   | 29   |
| Transportation .....           | 46   |
| Waste .....                    | 58   |

Each of the resulting five Environmental Issue Sections include the following subsections:

**Background:** describes the general scope of the environmental issue area

**Community Thoughts:** identifies the common themes identified during the Community Involvement Program

**Guelph Context:** discusses the current situation in Guelph, including current lines of responsibility, policies, processes and relevant statistics

**Provincial, National and Global Contexts:** outlines the situation beyond Guelph, to help put Guelph in perspective

**The Challenge:** provides a synopsis or statement of the ideal environmental vision or state (specific to the issue being addressed) that Guelph should work towards

**Goals:** identifies broad tasks or milestones that are considered to be critical components of the overall process of rising to the Challenge

**Objectives:** includes more specific statements about the types of action, or the direction of changes, that are needed to achieve the Goals and the Challenge.

### *Community Suggestions for Further*

**Consideration:** describes specific activities or changes in process that have been identified as possible methods of achieving the Goals and Objectives. These suggestions are based on input received from the public or from the writing committee members, and do not necessarily represent the full range of possible actions. The suggestions require further study to:

- identify inconsistencies with the Goals and Objectives;
- identify overlap or conflict with existing regulations and programs;
- determine economic soundness by carrying out a cost/benefit analysis; and
- determine priorities for implementation.

Together, the Challenges, Goals and Objectives form a framework to guide future decisions in the Guelph community. They provide a basis for evaluating future actions and proposals, including those community suggestions that have been recommended for further consideration in this document. A strategy for moving toward the Challenges, Goals and Objectives is discussed Chapter 3 - *The Implementation Process*.

It is anticipated that the Green Strategy Steering Committee, as proposed in Chapter 3, will have a critical role in evaluating these suggestions and in ensuring that detailed action plans are formulated. Through this evaluation process, it will be determined that some suggestions can be quickly accepted by all stakeholders, while others will require modification, and some may prove to be unrealistic.



## Chapter 2.1 - Environmental Issue #1

# Land Use and Development

### Background

The Land Use and Development issue was perhaps the most complex area examined by the Green Plan, because land use is linked so closely to all aspects of the environment, the economy and the social fabric of the community. There has traditionally been a struggle to meet the needs of providing housing, employment and recreational opportunities to a growing community, while respecting and preserving the environment that provides essential life support for the community.

The way we choose to use our land has direct impacts on the natural environment. It has the potential to eliminate or degrade wetlands, streams and woodlots, impairing both aquatic and terrestrial wildlife habitat.

The way that we use the land can affect our water resource by reducing the amount of water that can infiltrate the ground and replenish the

groundwater, by reducing base flows in rivers and streams, and by contributing contaminants to surface and groundwater supplies.

Energy consumption can also be affected by land use and development patterns, through the efficiency of the building construction, the effective use of solar orientation, and the use of plant materials for moderating temperatures.



Land use and development patterns are also closely linked with transportation needs. Urban sprawl and segregated services tend to place increased stresses on automotive and public transit services, while more compact, integrated development favors improved transit services and alternatives such as biking and walking.

Yet development trends reflect population pressures and market forces. Guelph's population is growing, and that population needs housing, employment, commercial services and recreational space. This section of the Green Plan strives to address those needs in harmony with the need to protect and preserve the environment.

### In this Section.....

|   | Page |
|---|------|
| Background .....                                      | 9    |
| Community Thoughts .....                              | 10   |
| Guelph Context .....                                  | 10   |
| National and Provincial Context .....                 | 11   |
| The Land Use & Development Challenge .....            | 13   |
| Goals .....   | 13   |
| Objectives .....                                      | 14   |
| Community Suggestions for Further Consideration ..... | 15   |

## Community Thoughts

The Community Involvement Program (CIP) revealed that most residents feel that there are barriers to public participation in the local land use planning process. The participants felt that the existing process is cumbersome and does not allow public input on important decisions in the early stages of the process. There was also recognition that it is difficult to motivate people to become involved in the process.

Developers and home builders also expressed dissatisfaction with the planning process. They felt that the existing legislation was excessive and resulted in a planning process that was overly bureaucratic and unnecessarily lengthy. There was a general feeling of frustration about rules that seem to change as the developer moves through the planning process.

Developers also indicated that they are in business to provide what the market wants, and they suggested that public attitude must change in order to cause a change in market directions. They also expressed concerns about being able to provide affordable housing if additional environmental planning and construction costs are required.

There was a general public consensus that uncontrolled sprawl will have adverse affects on the resources of the City and the surrounding areas. Sprawl leads to long term cost increases for the City by requiring extension of additional services to outlying areas, (schools, public works, transit). Many of the people concerned about urban sprawl recommended that existing developed areas should be intensified to meet future population growth. However, a number of concerns were also raised about intensification within the existing boundaries, including parking issues, increased crime, increased pressure on existing open space resources, and compromising the character of existing neighbourhoods with infill projects.

Many participants in the CIP were concerned that the natural environment should be protected from development, especially riverlands, wetlands and wildlife linkages. Preservation and/or creation of open space and greenways was emphasized. Many participants were concerned about the care of the City's trees, recognizing that they play a crucial role in enhancing the urban environment.

Residents frequently expressed concern about the accessibility to services, including shopping, recreational, administrative and health care services. Many people felt that services used on a regular basis, such as grocery and drug stores, libraries and recreational facilities, should be available within each neighbourhood, to reduce the need for lengthy car trips and to promote access by other methods of transportation. There was general consensus that facilities used more infrequently, such as hospitals and government offices, should be centralized to permit equal access to everyone. Issues raised during the CIP relating to industrial and commercial land use included accessibility and the need for segregation of noisy or polluting industry from residential areas.

## Guelph Context

### *Past Development History*

Guelph was founded by John Galt in 1827 as a centre for the Canada Company. Since its inception, Guelph has grown from an agriculturally based economy through a period of industrialization that coincided with the railway building period. Since that time, Guelph has continued to experience steady growth and economic diversification, such that Guelph's population is now approaching 100,000 people. As a result of this growth, Guelph has become diversified, with an older neighbourhood oriented core and an outer suburban fringe.



## *The Land Use Planning Process in Guelph*

Land use planning is guided by the Official Plan and the Zoning By-law, which follow the framework set out by the provincial Planning Act. The Official Plan comprises broad land use designations and policies that are intended to guide the way that Guelph will grow. The Zoning By-law is a more detailed planning tool that regulates the location, size and placement of the built form in the City.

When a proposal for development is initially received by the City, it is reviewed by Planning and Development Department staff. They determine if it meets the requirements set forth by the Official Plan and the Zoning By-law, and they prepare a report documenting their findings. Next, the proposal is circulated to a large number of commenting government agencies and non-government organizations, such as other City Departments, the Grand River Conservation Authority, the Ministries of Natural Resources and Environment and Energy, various utilities and neighbourhood groups. The Planning and Development Department compiles the responses from these reviewers, and formulates a final position on the proposal.

The proposal, together with the staff recommendations, is then presented to Guelph's Planning Advisory Committee (GPAC) for endorsement or refusal. GPAC consists of nine appointed citizens and one Councillor. Notification of the proposal is given to all neighbours within 120 metres of the development site, and they may provide their comments to GPAC or City staff. GPAC reviews the proposal and all comments, and provides Council with its own recommendations. Notification that the proposal is going to be considered by Council is again provided to adjacent landowners. The decision to accept or reject the proposal rests with City Council. Parties that are concerned with Council's decision may choose to appeal the decision to the Ontario Municipal Board (OMB).

## **Provincial, National and Global Context**

The provincial government is responsible for providing the framework that guides planning across the province. This framework is set out in the Planning Act, which is administered by the Ministry of Municipal Affairs. The Planning Act outlines procedural matters that relate to planning, and passes some planning authority directly to the municipality.

The province also provides information and advice to the public and municipalities, reviews significant development applications, reviews and approves Official Plans and amendments, and passes provincial policy to guide municipal planning. The province provides an appeal body, known as the Ontario Municipal Board, to act as an impartial decision maker, available to resolve disputes regarding local planning matters.

While individual municipalities have the power to determine certain local issues and to develop and implement municipal Official Plans, the parameters of that power are established by the Planning Act, and to a limited extent, other pieces of legislation applicable to planning matters.



The Sewell Commission (Ontario Commission on Planning and Development Reform, 1993) undertook a critical review of Ontario's planning process, and identified a number of limitations of the current system. Many of the criticisms made by the Sewell Commission relate to environmental sustainability, and were echoed by the participants in the Green Plan's CIP:

- There is no coordinated procedure in place to adequately assess the potential impacts of plans and development proposals on the natural environment before decisions are made. The Sewell Commission has recommended that environmental impact studies be required as part of the background information submitted with each application to be evaluated by a municipality and all commenting agencies, as part of the regular approval process.
- Limited rights or authority exist to prevent land owners from making drastic site alterations to their own lands (including dumping, clearing vegetation or topsoil, or regrading), despite the potential significant impacts on the character of the area and natural systems.
- The Planning Act provides limited authority to impose terms and conditions designed to protect the natural environment (including monitoring), on developments.

As a direct result of the Sewell Commission's recommendations, the provincial government has developed a set of proposed policy statements that clearly set out the overall goals and policies for the province's land use planning system. Following a public review period (currently underway), the policies will be finalized and will become policy statements authorized under the Planning Act. Four of these proposed policy statements will have direct impacts on planning for environmental sustainability, as discussed here.

The proposed Natural Heritage and Ecosystem Protection, Restoration and Hazards Policy deals with environmentally sensitive features that should be protected from development, including woodlots, ravines, natural heritage features and systems, and fish habitats. It also addresses those areas that may not be suitable for development because site conditions may be hazardous to public health and safety.

The proposed Agricultural Land Policy deals with the protection of prime agricultural land - defining which areas should have no development and which areas can undergo development that is not related to farming.

The proposed Conservation Policy promotes the efficient consumption of energy and water, through appropriate land use planning. The issues of working toward waste reduction and developing efficient transportation systems are also included.

Finally, the proposed Mineral Resources Policy deals with protecting existing operations, deposits and areas where resources may potentially be located, from incompatible development.



## The Land Use Challenge

The Guelph community must maintain an ongoing commitment to environmentally responsible development, through an integrated approach that balances economic and cultural needs with environmental and social responsibilities.

### Goals

- G1) Make the environmental planning process in Guelph more user-friendly for the developer, the City and the public, through recognition of, and coordination between, all relevant stakeholders.
- G2) Promote the responsible management of resources when developing land use plans.
- G3) Integrate land uses to promote a balanced community structure that maximizes resource efficiency.





## Objectives

- O1) Support informed decision making through improved information and education programs.
- O2) Encourage timely and constructive public participation in the planning process, leading to pro-active rather than reactive public input.
- O3) Strive to balance suburban development with infill opportunities through the appropriate distribution of alternatives and innovative design.
- O4) Encourage community based initiatives to address local environmental concerns (e.g. interest groups cleaning up the Speed River, caring for parks).
- O5) Preserve, protect and enhance natural heritage resources by maintaining and protecting sufficient open space to support a healthy and diverse environment.
- O6) Pursue development practices that are sensitive to the natural environment, by encouraging the creation of built environments that are in harmony with the natural environment.
- O7) Promote the compatibility of development with existing established and accepted building forms and streetscapes.
- O8) Improve accessibility to community services.
- O9) Improve the planning process at the municipal level by:
  - encouraging planners to continue to examine the City as a whole, to avoid piecemeal planning; and
  - improving the coordination and communication between City departments, both in terms of activities and resources.

## Community Suggestions for Further Consideration

### *Please note:*

*The following suggested activities or changes in process have been identified by members of the community and the writing committee as possible methods of achieving the Goals and Objectives. **The suggestions require further study to:***

- *identify inconsistencies with the Goals and Objectives, and determine general feasibility (i.e., can the suggestion realistically be implemented, and will it have the desired impact);*
- *identify overlap or conflict with existing programs or regulations (i.e., is it already being done? or are existing regulations in place?);*
- *determine economic soundness through a cost benefit analysis (i.e. what is it going to cost, who is going to have to pay, and who or what will benefit?); and,*
- *determine priorities for implementation.*

*It is anticipated that the proposed Green Strategy Steering Committee, as proposed in Chapter 3, will have a critical role in evaluating these suggestions and in ensuring that detailed action plans are formulated. Through this evaluation process, it will be determined that some suggestions can be quickly accepted by all stakeholders, while other will require modification, and some may prove to be unrealistic.*

### **Coordinated Planning Approach**

#### **S1) The City should consider developing a comprehensive and cohesive awareness, information and education program designed to improve the community's knowledge about how the environmental planning process works, and how members of the community can participate in that process.**

Public input is recognized as a critical component in effective planning for environmental sustainability. While it is true that access points for public input do exist early in the planning process, the public is often unaware of proposed developments or by-law changes until it is too late. By this point, community action to amend or reverse a decision often results in confusion and costly delays for the developers and the City.

Opportunities for public participation in planning decisions should be created early in the process. For example, the Sewell Commission Report includes the following recommendation: "public notification (of new development) should be given early in the process, and should include on site signage for site specific applications, and a notification registry."

Possible components of the awareness/information/education program are outlined below:

- Information about the planning process could be made available in the form of a series of basic policy and procedures manuals, such as "How to Access the Planning Process" or "Policies and Procedures that Guide the Engineering Department".
- Information could also be provided informally, through media stories, workshops and pamphlets.
- The City should publish a list of meetings open to the public, including those of Council, Boards and Commissions. The list should include contact names for obtaining information about meeting schedules and agendas. This list should be circulated via a general mailing or published in the media, and be available from City Hall on request.



- The City could appoint a liaison who would work with existing neighbourhood organizations to keep them apprised of upcoming planning issues that might impact their neighbourhoods. In addition, the City could encourage the organization of neighbourhood groups in areas where they currently do not exist.
- Agendas for Council meetings are available from the City Clerk's office the Friday prior to a Monday Council meeting. They should be made available at other public areas in order to improve communication with citizens. This should reduce the number of "after the fact" responses to council decisions.
- Greater media involvement could be encouraged, and could include a "City page" in the local newspapers, or a regular feature on the local cable station.
- The City could develop a recorded telephone message designed to provide up to date information on an continuous basis.
- Consideration should be given to providing information on a Ward basis, possibly through the use of community notice boards, or Ward newsletters that are developed and distributed by Ward councillors.

**S2) The potential for improving the effectiveness of the existing planning process by increasing the coordination and cohesiveness between departments, should be investigated.**

An integrated planning approach is needed to move towards environmental sustainability. Suggestions identified by the community are provided below:

- The City should continue to develop programs or strategies that promote and improve the sharing of information and expertise among staff.

- The City should continue to circulate information regarding departmental initiatives to other related departments as early as possible to eliminate duplication of effort and to identify potential areas of conflict.
- New integrated management systems could be considered. For example, perhaps the Economic Development Department should be combined with the Planning Department, since their functions complement each other and must not operate independent of each other.

**S3) City-wide secondary planning should continue to be encouraged.**

The City's Official Plan provides a general long term vision for development in the City. Participants in the CIP emphasized the need for the City to have more detailed plans that clearly indicate the City's intentions for specific areas of the city.

These detailed secondary plans are strategic tools for community building as a whole, and include greater consideration of the interconnections between planning areas. They link the built form, biophysical and socio-cultural aspects of individual communities to the overall City.

Incorporating public input during the development of detailed secondary plans could also help alleviate controversy if the land is to be developed at a later date.

The City should continue to maintain or promote a close working relationship with large public and private institutions that operate under special zoning regulations, to ensure that future development on these properties is in keeping with the overall environmental strategy of the City. Staff liaison committees currently meet with several of these large institutions, such as the University and Homewood.

## *Resource Identification / Information*

### **S4) The City should continue to inventory existing environmental resources and identify environmentally significant areas in keeping with current provincial guidelines.**

The City is carrying out an environmental resources inventory as part of the current Official Plan review. The inventory should include wetlands, woodlots, riverlands, hedgerows, boulevard trees, and any other environmentally sensitive or significant areas. These areas should be appropriately designated and protected in the Official Plan. The inventory should be updated regularly.

The resource inventory could be used as a basis for education, discussion and information exchange. For example, the City is committed to implementing the provincial Wetlands Policy. Once the resource inventory identifies environmentally significant wetlands, discussions could be encouraged between the City, the Grand River Conservation Authority, developers and the public about the best way to minimize damage to wetlands complexes, in keeping with the guidelines set forth by the province. By working together and sharing information, future potential conflicts can be minimized.

The environmental inventory could identify areas of concern. If potentially contaminated abandoned sites are identified, the City could work with the Ministry of Environment and Energy, to set out scheduled targets for clean up of these sites. Due to the prohibitive costs associated with cleanup operations, this would likely be a long term strategy.

The City could establish a program to survey and assess the conditions of Guelph's urban forest, to evaluate and improve the existing tree protection and tree planting policies. Many participants in the CIP felt that street trees are in poor health and decreasing in number. Volunteers could be trained to identify, assess and measure these trees. This program would also educate the public about the importance of these trees.

### **S5) The City should consider the development of a comprehensive library of their environmental planning reports, policy documents and reports on environmental initiatives.**

Many staff within the City accumulate a wealth of information within their departments or their individual offices. These include both studies done within the City, and reports from other jurisdictions that were collected for information purposes. These resources could be inventoried and compiled into a central library and be made available to both City staff and the general public. Furthermore, the City could actively augment this library by continuing to look for information from other communities. This information library could be expanded by linking with other information databases, such as the University of Guelph Library, or ICURR (Intergovernmental Committee on Urban and Regional Research) and the public library system.



## *Ecological Systems Planning*

- S6) The City should continue to move towards planning policies that are based on the principles of watershed planning, ecological systems planning and natural heritage systems planning, taking into account both landscape forms and ecosystem values.**

For example, the City should review and endorse the proposed Natural Heritage Systems Policy, currently available as a discussion paper published by the Ministry of Municipal Affairs.

It is significantly less expensive to protect resources through careful planning than it is to embark on costly restoration or clean up of projects after the fact.

- S7) The City should consider developing a comprehensive Greenways Plan.**

A Greenways Plan would provide a mechanism for combining core natural areas, waterways, abandoned rail lines, historical and cultural sites and other natural heritage features into one integrated resource for the use and enjoyment of City residents and visitors. The Greenways Plan could incorporate resources identified in recent studies, such as the River Systems Study and the Hanlon Creek Watershed Study. It might be possible to link the development of a Greenways Plan with the upcoming revision of the Recreation and Parks Master Plan.



## *Naturalization*

- S8) Methods of promoting the creation, maintenance and stewardship of naturalized systems on both public and private lands should be investigated.**

Actions that the City and others could take are outlined below.

- The City could review and possibly amend the property standards by-law to permit and encourage naturalization, where appropriate
- In some cases, paved areas in school yards could be reclaimed by grass, or preferably by a diversity of naturalized environments (i.e.: treed areas, fields.) In addition to benefits to the natural environment, this type of design can provide more educational opportunities for the children. The province does have guidelines that specify the amount of paved surface required around a school, mainly for safety and emergency vehicle access. If more pavement currently exists that required by the guidelines, consideration should be given to naturalizing that area. The local school boards do have some naturalization policies in place. Public safety factors should be taken into account when developing a naturalization scheme.
- Appropriate organizations could be encouraged to promote the benefits of using groundcovers other than grass. Mowed grass lawns offer little in the way of habitat value, and require resources in the form of water, energy and time to maintain. Organizations such as the Turfgrass Institute, OPIRG or Guelph 2000 may be able to provide the community with education or information programs related to alternative groundcovers.
- The City's Recreation and Parks Department has a naturalization policy in place. The City could set an example by continuing to switch to alternative groundcovers and other vegetation community types in appropriate areas. Perhaps information signs could be posted in these areas informing the public about the type of groundcover being used, and contacts for further information.

- S9) Neighbourhood associations or other local action groups should be encouraged to continue to coordinate independent environmental clean up efforts.**

Two very successful examples of projects that have been carried out by the community include the Speed River Clean Up and the Hanlon Creek Clean Up. Methods of stimulating and coordinating these types of activities need to be developed.

### *Intensification/ Infilling/ Integrated Land Use*

- S10) The City should research and develop design guidelines that would promote intensification of developed areas.**

Intensification is one possible solution to minimizing the environmental impacts associated with urban sprawl. However, people living in existing developed areas often reject intensification proposals because they fear alterations to their neighbourhood.

Intensification design guidelines would require preservation of the neighbourhood character or streetscape, and strict enforcement of parking, property maintenance and noise by-laws. By-laws, such as those specifying setbacks or building heights, would have to be flexible to match the existing surroundings.

A variety of housing types and a mixture of densities integrated within a neighbourhood should be encouraged; however, there must be consistency in streetscape design.

Medium density apartments could be encouraged in the central downtown area. These buildings should not be "stacked together", rather they should be integrated within the existing built environment, in keeping with existing streetscapes.

Any proposals for infill developments must ensure that they do not compromise the existing carrying capacities of existing municipal services.

- S11) The City should continue to promote redevelopment or reclamation of commercial or industrial sites that are not longer in use (abandoned warehouses, gas stations, etc.).**

These areas could be turned into green space, or could be reclaimed for another use, thereby providing infill opportunities within the City, and maximizing use of the existing infrastructure.

- S12) The City should investigate ways to improve the integration of transportation planning and land use planning.**

Land use and transportation are closely linked, and future planning should reflect this. For example, in addition to being an inefficient use of land, urban sprawl places increased stress on transportation systems, and decreases the viability of pedestrian and cycling modes of transportation. By increasing the dependency on the automobile, more land is needed for new roads and parking lots.





**S13) The City should examine the potential for greater flexibility in development design, to make greater use of environmentally friendlier design concepts.**

Some ideas that might be considered are provided below.

- Establish flexible road allowance criteria for small developments (roll curbs, elimination of sidewalks on cul de sacs, etc.). This would maximize efficiency of land use in small developments without compromising the safety requirements that must be imposed in larger developments with higher traffic flows.
- Storm water Best Management Practices (BMPs) can be used to reduce contaminated runoff and maximize infiltration of precipitation. For example, reduced final grading requirements in new subdivisions allow more surface water to infiltrate the soil and reduce necessary storm sewer capacities. Many BMPs are already required by either the City, the Grand River Conservation Authority, or the Ministries of Natural Resources and Environment and Energy.

**S14) The City should continue to support the geographic distribution of community and private services within the City, to maximize the environmental benefits associated with access and integrated land use. Similarly, the City should reexamine the appropriateness and distribution of industrial-zoned land in the City.**

Ideas to be considered further are provided below.

- Government services such as City Hall functions or social services, should remain centralized in the City core. This allows equal access to these services by all members of the community.
- Other community services such as libraries, schools, churches and recreation/community centres should ideally be dispersed throughout the City to allow easy access to residential areas. This would limit the length and costs of travel required by reducing the length of automobile trips and the need for school bus programs, while promoting alternative methods of transportation such as walking or cycling. These needs were often identified by participants in the community involvement program living in the newer areas of the City. In all neighbourhoods, the City tries to provide open space within a 15 minute walk for all residents. As part of a full cost recovery strategy, it would be very expensive to provide arena's, pool's, tennis courts, etc., within every neighbourhood. The City currently plans to provide 3 major recreational facilities: one in the east (existing), one in the west (3-10 years) and one in the south (10+ years), to meet the needs of each area of the City.
- Commercial nodes should be designated throughout the city to provide close access to convenience stores, pharmacies etc. Large shopping mall complexes should be avoided near residential areas.

- The City should review new development proposals in terms of proximity to existing services, and appropriate zoning should be made to allow for the construction of services if they are not easily accessible.
- Industrial zoning classifications should be reviewed and possibly revised, so that less disruptive, noise free industries or “clean industries” fall into a separate category that could be integrated in residential or commercial areas. The zoning by-law would have to include specifications that ensure that these clean industries conform visually with the surrounding neighbourhood.
- Medium to heavy industry should remain segregated from residential areas; however, improved transit service should be encouraged to the outlying industrial areas.
- Landscape buffers should be placed between industrial areas and adjacent residential areas to reduce noise and visual impacts, in keeping with existing Ministry of Environment and Energy requirements. This could create effective green space through the planting of trees and creative landscape design.
- Creative landscape design should also be encouraged for large commercial developments within the city. Trees and groundcover can be used to improve the appearance and environmental function of the site without interfering with signage or reducing parking availability.

## *Protection/Enforcement*

### **S15) The City should continue to investigate more effective and efficient ways of exercising control of environmental impacts through existing environmental standards and regulations.**

The community raised a concern that although regulations and guidelines are designed to help protect the environment, they aren't being enforced, or aren't being used to the greatest opportunity. Some suggestions for further consideration are provided below.

- The City should maintain dialogue with the province to try to develop more effective enforcement methods. Many environmental standards and regulations are made at the provincial government level, and can only be enforced by the province. The City is required to work with this legislation, but it is up to the province to enforce it. The City may often be aware of problems that violate provincial environmental regulations, but enforcement of those regulations is not within the City's jurisdiction.
- The City should try to identify better ways of monitoring developments in progress to ensure that environmental protection requirements specified in the development agreements are being followed. The City and the Grand River Conservation Authority are responsible for enforcing development agreements. However, inspections by these authorities are done on an infrequent basis. The City now requires developers to hire an inspector that reports to the City. The City should investigate alternative strategies for improved monitoring for sediment and erosion control.
- The Heritage Act gives municipalities the power to designate natural heritage features for protection. The revised Heritage Act will provide stronger protection measures for natural heritage features. The City should take full advantage of the powers available through this Act.



- S16) The City should investigate methods of assisting residents who have concerns about air pollution to make effective contact with the appropriate provincial authorities.**

Many residents expressed concern about air pollution from industry, within the workplace or even from residential woodstoves and fireplaces, and they do not have a clear understanding of the regulations covering air emissions. Air emissions and air quality regulations fall under provincial jurisdiction. Currently, the City will pass any concerns expressed by residents on to the appropriate agency, or they will provide the contact information to the concerned party. Some suggestions for improving the connection between citizens and the provincial government in this regard include supporting more descriptive listings of government functions in the Blue Pages of the phone book, or providing a list of contacts in environmentally oriented City publications, such as the City's Waste Management Newsletter.

- S17) The possibility of requiring an environmental impact assessment for every new development proposal should be investigated.**

The extent of this assessment would depend on site conditions. Projects with little potential for environmental impact would not require as much study as projects that have a potential for significant impacts, and the environmental impact assessment could consist of completing a simple checklist. As the potential for impacts increases, the level of detail required in the environmental impact assessment would also increase.

- S18) The City should continue to seek a clearly defined protection designation for the Arkell Spring Grounds, other City water supply wells and any appropriate adjacent lands, to protect the Springs from development related impacts.**

The City of Guelph and the Grand River Conservation currently own the majority of the land encompassing the Arkell Spring Grounds. As part of their comprehensive Water Supply Study, the City has undertaken a detailed study of the Arkell Spring Grounds and the areas contributing to this water source. The City is in the process of developing a well head protection policy for all City wells, and is seeking a special protection designation for the Spring Grounds from the Ministry of Environment and Energy. Protection of the groundwater resource is covered in greater detail in the Water Issue Section.



**S19) Methods for protecting trees from development impacts should be developed.**

The City currently consults with the appropriate professionals during the design phase of large projects, such as the construction of new roads, to minimize impacts on the tree population. This effort should be taken one step further, by having these professionals available to inspect the progress during the construction phase of the project.

Trees in many established areas may be damaged by routine or remedial maintenance activities, such as the repair or relocation of watermain, hydro lines, telephone cables or gas mains. While there are some procedures already in place to help protect trees from these types of activities, the coordination needs to be improved. Currently, trees in City parks and the downtown core are under the jurisdiction of the Recreation and Parks Department, while boulevard trees fall under the jurisdiction of the Engineering Department. The City should place all of these trees under the jurisdiction of the Recreation and Parks Department. Furthermore, staff in the Recreation and Parks Department that have qualifications in urban forestry should be consulted before any activities that may harm these trees is carried out. The public should be informed that this expertise is available, so that they can call the City if they are concerned about the impact of these maintenance activities on trees in their area.

The City should work with developers to encourage the use of designs that maximize the integration of existing trees with new built environments. The development of woodlots is controlled to some extent by the provincial Tree Act, which is currently under review by the Ministry of Natural Resources.

**Administration**

**S20) The City should consider devoting additional staff resources towards limiting the impacts of development on the natural environment.**

Two suggestions that were frequently raised by the community are provided below:

- The City should include an environmental planner on staff. This staff person would have a coordinating/liaison role, and would be responsible for advising and educating City staff and the public on environmental planning issues. The environmental planner would have to become involved with multiple departments to ensure that environmental concerns are factored into policy decision making. (note: an alternative would be to train an existing staff person to take over this role).
- The City should continue with its plans to implement an Environmental Advisory Committee, or include an environmental evaluation component in the mandate of the existing Planning Advisory Committee.





## Chapter 2.2 - Environmental Issue #2

# Water

### Background

#### *The Hydrologic cycle*

Water is the lifeblood of the environment. It forms an indispensable and integral component of the natural environment. It is part of the life support system for plants, animals, and humans.

Water is continuously in motion; however, on a global basis, the total quantity of water remains almost the same - little has been added or lost over the years. The same water has been transferred time and time again from the oceans into the atmosphere by evaporation, dropped down on the land as precipitation, and transferred back to the sea by rivers and groundwater movement. This endless circulation is known as the hydrologic cycle.



#### *Water availability*

Scientists estimate that the world and its surrounding atmosphere contains over one billion cubic kilometers of water (just one cubic kilometer of water would fill 300 Olympic stadiums). Water covers nearly three quarters of the earth's surface in the forms of oceans, glaciers, snow, rivers, and lakes.

These large numbers have resulted in the general perception that our water resources are practically unlimited. In fact, only 2.5% of the world's water is fresh water, and only 1/100<sup>th</sup> of 1% of this is present as surface and atmospheric

#### In this Section.....

|  | Page |
|--|------|
| Background .....   | 24   |
| Community Thoughts .....                                 | 26   |
| Guelph Context .....                                     | 27   |
| Provincial, National and<br>Global Contexts .....        | 28   |
| The Water Challenge .....                                | 29   |
| Goals .....  | 29   |
| Objectives .....   | 29   |
| Community Suggestions for<br>Further Consideration ..... | 32   |

water. The rest of the fresh water is contained in polar ice caps or is deep underground. Much of this groundwater is not readily available for withdrawal due to unfavorable soil or bedrock conditions, or it is unfit for consumption due to a naturally high salt content.

### ***Link between surface water, groundwater and atmospheric water***

While the total quantity of water existing on earth may remain relatively constant over time, the balance of the hydrologic cycle is not constant. The availability and quality of water fluctuates with both time and place.

The interdependency of surface water, groundwater and atmospheric water is of great importance in the hydrologic cycle. Whether precipitation becomes surface runoff or groundwater, depends upon a number of factors. Precipitation that falls on sandy soils, gravels, and some rock types, is more likely to penetrate the ground and contribute to groundwater flows than precipitation that falls on clays, impermeable rocks or pavement, which tend to contribute to surface runoff. Water falling on sloped areas tends to run off rapidly, while water tends to be absorbed or stored on the surface in flat areas.

Vegetation decreases surface runoff because the root systems hold on to soil that can absorb water. Water also remains on the leaves of the plants, slowing down the rate at which it passes over the soil, allowing for increased infiltration. Vegetation also provides shade, decreasing the evaporation of water being held by the soil. Before human settlement, streams were typically clear all year because natural vegetation prevented soil loss. Clearing forests for agriculture, logging and urbanization has resulted in both soil erosion and more surface water runoff into the streams and lakes. This accelerated runoff aggravates flooding problems.

### ***Groundwater discharge helps maintain streamflows***

Perhaps the most significant function of groundwater is the way that it gradually discharges to rivers and streams to maintain flows during dry weather periods. It needs to be stressed that there is a delicate natural balance between the amount that groundwater resources are recharged from precipitation, and the discharge of that groundwater to streams.

A decrease in groundwater discharge to streams can lead to serious conflicts with downstream water users, especially in smaller streams. It can also affect fish and other aquatic life in these streams. Consequently, it is important to consider groundwater not as a solitary source of water to be developed or used without further thought, but rather as an intimate link to surface water and to all living species in the context of the hydrologic cycle.

### ***Groundwater quality***

As water passes from the surface into the groundwater system, some substances in the water are filtered out by the soil, and some materials in the soils become dissolved or suspended in the water. Salts and minerals that exist in the local soil and bedrock and that dissolve in the water as it travels are the source of what is referred to as "hard" water, a common feature of well water in Guelph.

Groundwater can also pick up man-made chemicals and other pollutants resulting from industrial and other activities, that have been stored or spilled on the ground, or that have been buried in dumps and landfill sites. Although it is not readily visible to the eye, the underground movement of water is a pathway for the movement of pollutants. Groundwater contamination can occur in both rural and urban areas.



## *The importance of wetlands*

Wetlands are areas where the water table occurs above the land surface for at least part of the year. In wetlands where open water is present, the water is usually less than two meters deep and stagnant or slow moving.

In Ontario, wetlands are classified into seven categories. Class 1, 2, or 3 are provincially significant and are protected by provincial policy. Class 4 and 5 are regionally significant, while 6 and 7 are locally significant. Wetlands in these classifications are protected through local policies.

Wetlands are an integral part of the ecosystem because they store water and act as reservoirs, reducing the risk of flooding. Some wetlands also help to recharge groundwater supplies. They can improve the quality of water by trapping sediment, and filtering nutrients and contaminants. Wetland vegetation along lakes and rivers can reduce shoreline erosion by providing a physical buffer between the open water and the shore.

Wetlands provide habitats for many kinds of plants and animals, some of which are found only in wetlands. For ducks, geese and other migratory birds, wetlands are a vital part of the migratory cycle because they provide food, resting places and seasonal habitats. Many animals spend their entire lives in wetlands. Wetlands, particularly shoreline and river mouth wetlands, are important spawning and nursery grounds for many species of fish. In general, wetlands are the most productive terrestrial habitats.

## **Community Thoughts**

### *Water quality*

Participants in the community involvement program (CIP) expressed considerable concern for maintaining the high quality of water available in the City, and ensuring that water leaving the City is as clean as when it enters the system. Residents expressed a preference for using groundwater instead of surface water, and wanted to protect the City's groundwater resources from possible contamination.

The community also wants to maintain surface water quality at as high a standard as possible, and to protect wetlands and rivers for wildlife and recreation.

Suggestions for maintaining water quality included improved education, new legislation, improved technology, stricter controls on hazardous wastes and fines for polluters.

### *Water quantity*

Many residents felt that Guelph should be responsible for its own water supply, and should avoid piping water in from distant sources. The community recognizes the need to promote water conservation to reduce consumption and to maintain resources for future use. Suggested strategies include education, full cost pricing, water conservation devices in homes, higher efficiency in industry, stormwater management, and protection of recharge areas and possible future well sites. The need for developing policies to protect the water resource was also identified.

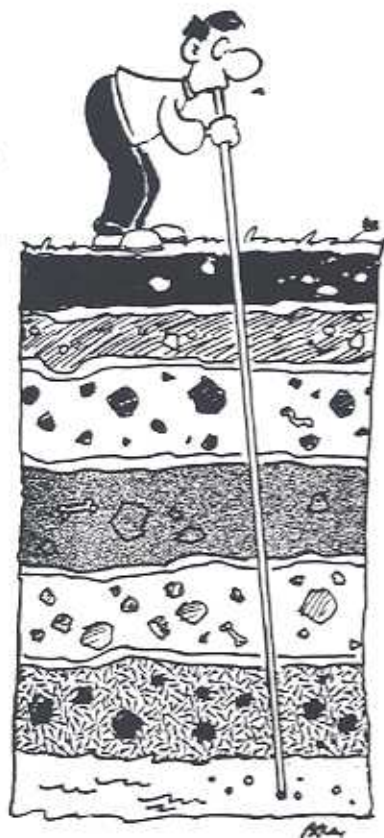
### *Education*

Residents stressed the need to develop excellent education programs, to promote pollution prevention, water conservation and awareness.

## Guelph Context

### Groundwater

The City of Guelph's sole source of municipal water is groundwater withdrawn from local aquifers. Aquifers are geologic formations below the surface of the ground that are capable of providing substantial quantities of water when tapped by a well. Guelph is fortunate because it has extensive local sand deposits and underlying bedrock formations with aquifer potential.



Over half of the City's water comes from the Arkell Spring Grounds and five surrounding wells in Puslinch Township. This water is conveyed by gravity through an aqueduct to the F.M. Woods Reservoir and Pumping Station on York Road, which is owned and operated by the City. The remaining municipal water is drawn from approximately 17 wells located throughout the City.

The quality of the City's water is excellent. Guelph's water is regularly tested to ensure that it meets the provincial Drinking Water Objectives. Guelph is also a participant in the provincial Drinking Water Surveillance Program

(DWSP), which involves testing for 180 different substances.

Because of the high quality of the City's water, only the minimum chlorination required by provincial regulation is needed, with minor treatment occasionally added for sulphur odors at some of the wells.

### Surface water

The Speed and Eramosa Rivers flow through the City, entering from the north and west, respectively. The Eramosa River flows into the Speed River immediately upstream (east) of Gordon Street, just south of Wellington Street. The Speed River leaves Guelph in the southwest. These rivers are critical to the community, and provide habitat, recreational opportunities and unique aesthetics. The Speed and Eramosa watersheds cover approximately 400 km<sup>2</sup>, both within Wellington County and in neighbouring regions.

### Local water use

In 1989, the City withdrew approximately 17 billion litres of water from the municipal wells and the Arkell Spring Grounds System. That's enough to cover the entire City of Guelph with 0.25 meters of water, or Stone Road Mall (including the parking lot) with a tower of water over 40 stories tall.

On a daily basis, an average total of 46 million litres is currently used in the City, or about 540 litres per person per day. Typically, 49% of the total municipal water withdrawal is used by residents, with the remainder going to commercial, industrial and institutional users. Every person in the City uses approximately 265 litres in their home, everyday. This is enough to fill an average bathtub to brim twice over.



### ***Waste water treatment***

The Waste Water Treatment Plant is owned and operated by the City of Guelph. It is a tertiary treatment plant with nitrification and chemical addition. The daily average flow through the treatment plant is approximately 43 million litres per day.

A compost facility that is presently under construction will take the biosolids produced by the treatment plant and turn them into an easily handled compost product that can be put to beneficial use.

### ***Water Systems Study***

In 1990, the City of Guelph began a Water Systems Study. Phase 1 of the study reviewed available information on the local and regional groundwater resources, and assessed groundwater availability in conjunction with historical and projected trends of supply and demand. Phase 1 concluded that the existing water supply system is capable of satisfying average daily consumption associated with moderate population growth and water use beyond the year 1999. Slow growth and low water demand could extend that date to beyond 2016. However, in order for the City to continue to use the groundwater resource in the long term, without exceeding the natural recharge capacity of the system, it was determined that a comprehensive planning strategy was needed.

In Phase 2, the study included the development of water distribution system computer simulation model, aquifer performance testing protocol, a groundwater protection strategy, monitoring program procedures, and conservation and education programs.

Phase 3, the development of a Water System Master Plan, is currently underway. The Master Plan will document the fully developed supply and distribution system, including wells, storage

and treatment facilities, and trunk mains. The Plan will provide the City with a valuable tool to assist in the future planning, design and operation of the overall Water System, as well as the protection and conservation of the water resource.

## **Provincial, National and Global Context**

Across Canada, 10% of the water used in Canadian municipalities comes from groundwater; the rest is from lakes and rivers; 26% of all Canadians rely on groundwater for domestic use.

Ontario contains about one half of the basin of the Great Lakes which, by themselves, constitute 18% of the world's freshwater resources. However, only 1% of the volume of the Great Lakes is replaced by annual surface water runoff, and therefore only 1% can be consumed from the Great Lakes on a sustainable basis. The Great Lakes basin, representing 31% of the province's runoff, is home to 90% of the province's population. The province possesses some 228,000 lakes; however, the majority of these lakes are not located near large population areas.

The value of groundwater as a major source of supply is well recognized in Ontario in spite of the general abundance of surface water. Besides the fact that most rural water supplies in Ontario are obtained from wells, almost 27% of all municipal water supplies, servicing about 1.1 million people, is from groundwater sources.

In Canada, the responsibility for water management is shared by the federal, provincial and municipal governments. There are 15 federal and over 75 provincial statutes that directly or indirectly pertain to water. A general discussion of water quantity and quality legislation is contained in Appendix B.

## The Water Challenge

The Guelph community must work together to enhance the water resource (in terms of both quantity and quality) through wise and efficient use, while supporting a healthy and sustainable ecosystem.

### Goals

- G4) Protect, preserve and conserve water to ensure a sustainable resource.
- G5) Protect and enhance water quality.

### Objectives

**O10) Ensure an adequate water supply through the protection of surface waters, wetlands, recharge areas and well heads.**

The provision of a sustainable water supply to service residential, industrial, recreational and other users depends on maintaining and protecting existing and future water supplies. This objective addresses measures to prevent disturbances to the water resource that could cause a permanent reduction in volume and flow. It also addresses the need to enhance existing resources, to ensure a continued supply into the future.

Recharge areas, including areas such as coarse textured soils and wetlands, allow precipitation to percolate through the ground into the groundwater system. If

recharge areas are not protected, the resulting reductions in groundwater supplies could cause a reduction in water levels in wells, rivers and lakes, along with negative impacts on natural systems, such as the drying of wetlands.

Lakes, rivers, wetlands, and groundwater need protection because they provide water storage. Wetlands reduce flooding by slowing stormwater runoff. Wetlands, together with groundwater, help maintain surface water levels by releasing water slowly.

Existing water supply wells and sites for new wells need to be protected because they will be required to ensure a sustainable water supply.



**O11) Encourage the wise management of water resources through conservation measures.**

Water is a finite resource; as more is used, less is available. Water that is drawn from wells is naturally replaced by groundwater movement and the infiltration of surface water. As a population grows it generally uses more water. At some point in the future, the population will be withdrawing water faster than nature can replace the groundwater. If this occurs, alternative sources will have to be found.

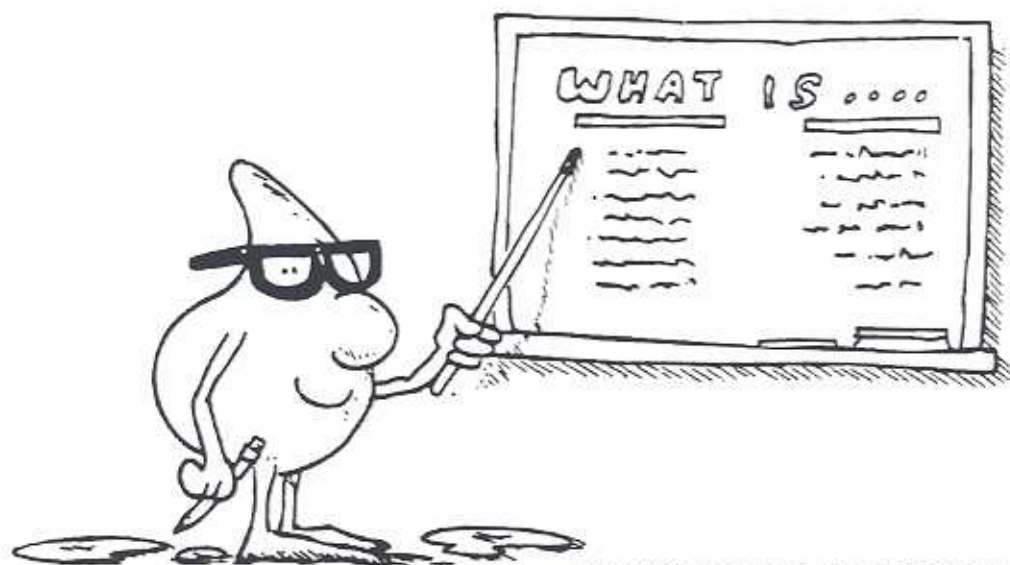
To maintain a sustainable water resource, it is necessary to use what is available in a more efficient manner. *Conservation* means "to make wise use of water", to preserve and protect it. In order to ensure that water supplies are sufficient for future generations, everyone must begin to reduce their water use today.

**O12) Support informed decision making through improved information and education efforts.**

There are many different uses for water, and some of them are conflicting. Adequate supplies are needed for drinking, industrial processes, residential uses, recreation, and maintaining natural ecosystems. Sometimes it is difficult to agree on what water is to be used for, and how much can be used.

To ensure a clean sustainable supply, we will need to make decisions that prioritize water use. These decisions will have to be made by the City, institutions, farmers, business, industries and individual residents. If people are to make wise choices, they need factual information. Ultimately, a social shift in attitude from consumer to steward will be needed to ensure we have a clean sustainable supply forever.

Education should take place in the schools, the community, industry and government. Hopefully, as the young people of today become the decision-makers of tomorrow, they will have the knowledge to make informed choices.



From "A Primer on Fresh Water", Environment Canada, 1993

**O13) Develop short and long term water management strategies.**

Good water resource management maintains a balance between growing social, economic and biophysical demands, and the continued ability of our water resource to support them. Short and long term recommendations and management strategies are needed to ensure a sustainable water supply into the future.

These measures may take the form of changes in practices and procedures related to water use, or policies to protect water resources. Some strategies could include recommendations at specific sites, while others might require implementation on a watershed basis.

Everyone in the community can contribute to water sustainability, through the decisions and actions of individuals, families and neighbourhoods, business and industry, and the City.

**O14) Protect the natural environment for its inherent value.**

Most of us take the existence of nature for granted. Everyone enjoys the changing colours in the fall, a snow laden evergreen tree and the singing of birds in the spring. The value of these joys is impossible to measure.

Over the years, many plant and animal species have been reduced in number, some are now extinct, others are endangered or threatened and could yet become extinct, while a few species have thrived on changes to their environment. In southern Ontario, the majority of the forests have been cleared and similarly, a significant portion of the wetlands have been drained, in the past 200 years.

Ecosystems are complex natural communities of plants and animals that depend on each other for survival. The integrity of a natural aquatic ecosystem depends on both the quality and quantity of the base flow in the river. Reducing water flow or releasing pollutants into the water jeopardizes the continued health and existence of the ecosystem.

While the natural environment and its aquatic component are crucial to our survival, its existence for beauty and enjoyment is just as important. The fact that different species exist in different habitats is reason enough to protect those habitats. This objective addresses the need to protect the natural environment from impacts related to water use.

**O15) Meet or exceed water quality criteria.**

The provincial and federal standards established for water resources were designed to protect the best interests of the citizens across the country. These interests include the preservation and restoration of water quality for safe use. Uses include public, agricultural and industrial water supply, recreation, aesthetic enjoyment and the propagation of fish and wildlife.

By making a commitment to meet or exceed these water quality standards, the Guelph community will take a significant step towards protecting its water resources now and in the future.



## Community Suggestions for Further Consideration

### *Please note:*

*The following suggested activities or changes in process have been identified by members of the community and the writing committee as possible methods of achieving the Goals and Objectives. The suggestions require further study to:*

- *identify inconsistencies with the Goals and Objectives, and determine general feasibility (i.e., can the suggestion realistically be implemented, and will it have the desired impact);*
- *identify overlap or conflict with existing programs or regulations (i.e., is it already being done? or are existing regulations in place?);*
- *determine economic soundness through a cost benefit analysis (i.e. what is it going to cost, who is going to have to pay, and who or what will benefit?); and,*
- *determine priorities for implementation.*

*It is anticipated that the proposed Green Strategy Steering Committee, as proposed in Chapter 3, will have a critical role in evaluating these suggestions and in ensuring that detailed action plans are formulated. Through this evaluation process, it will be determined that some suggestions can be quickly accepted by all stakeholders, while other will require modification, and some may prove to be unrealistic.*

### **Conservation**

#### **S21) Consider metering all water users.**

It has been demonstrated in numerous North American communities that the metering of water use promotes conservation. For many years now, businesses, detached and semi-detached residences in Guelph have been individually metered. Customers pay for the amount of water they use.

The Waterworks Department should continue to strive for individual metering in multi-unit complexes in the City. Also, all home-owners could be provided with their historical use data (similar to Union Gas bills) along with information on community water use trends, to help them view their consumption patterns in perspective.

#### **S22) Research and develop programs to reduce once through water use.**

The City recently amended the water use by-law to prohibit single, once through water use in industry, and the Industrial, Commercial and Institutional (IC&I) sector is already working towards eliminating such water use. It is important that the City enforce this bylaw, and the IC&I sector should be encouraged to continue their efforts to recycle and reuse water

**S23) Investigate the potential use of grey water.**

Grey water typically refers to residential water that has been used for cleaning purposes, such as dishwater, bath water and laundry water. Grey water makes up about 60 percent of the residential waste water stream, and thus significant water reduction benefits could be achieved by finding ways to reuse this water for other activities, such as toilet flushing or lawn watering. However, concerns about the level of contamination of grey water by bacterial matter, detergents, etc., have to be addressed. The City should support investigations into the feasibility of, and technology for, using grey water.

**S24) Encourage the research, development and use of water efficient equipment and appliances.**

Significant reductions in water consumption can be achieved by relatively minor retrofits such as modifying toilet tank capacities and installing low flow shower heads and other fixtures. The City should promote the research and development of water saving devices, and should require their use where appropriate. The consumer should be provided with advice about various retrofitting alternatives and their environmental benefits.

**S25) Assess the need to upgrade the Plumbing Code.**

Currently, the Plumbing Code requires 12 litre toilets to be used in all new construction by 1994, and 6 litre toilets by 1996. The City should consider supporting methods of accelerating these time lines. The possibilities of including other water saving devices in the Plumbing Code should be considered.

**S26) Investigate and promote alternative landscaping and groundcovers.**

Lawn water places heavy demands on the water supply system during the summer months. Lawn watering requirements can be reduced or even eliminated by choosing appropriate types of vegetation. Plants use less water than grass and reduce evapotranspiration.

**S27) Investigate and promote methods of reducing lawn watering.**

Educational programs could be used to promote the need to reduce or eliminate lawn watering. Alternatively, the City could control lawn watering through by-laws.

**S28) Consider promoting the use of cisterns.**

Cisterns can be used to collect rainwater for use in the yard.

**S29) Research and develop short and long term incentive programs to conserve water resources.**

Financial and non-monetary incentives could be developed to promote conservation in the both the residential and IC&I sectors. Some possible examples include:

- grants and loans for environmental audits and upgrades in equipment
- tax rebates
- special water rates for reduced consumption through conservation efforts such as recycling and reuse
- public recognition or awards for conservation
- coordinated opportunities for research on conservation practices between research groups and local industry, facilitated by the City

**S30) Encourage industry to undertake water audits.**

Water audits can promote efficient use of water by:

- targeting inefficient use of water;
- identifying opportunities for recycling and water conservation; and,
- providing education regarding wise use of water and possible savings.

Incentives for industry to undertake water audits could include:

- continued subsidies for industrial water audits
- training, information, and advice.

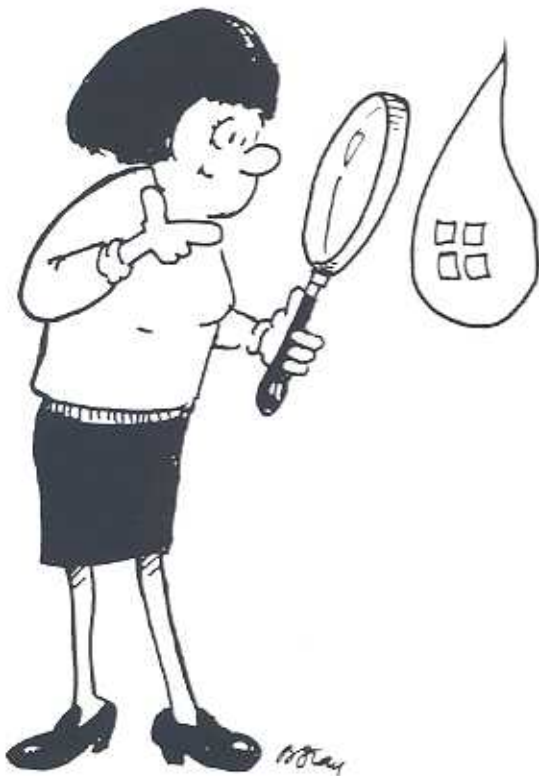
**S31) Identify and implement short and long range programs to encourage industries to work together with the City in support of a clean sustainable water supply.**

Industry personnel are knowledgeable about water use in their industrial processes, and they should be consulted on water issues. Wise water use can mean cost savings for industry, as well as an improved public image for “green” companies.

Educational programs, service programs, financial and non-monetary incentives could be developed to encourage partnerships between industry and community groups, or between industry and the City. Dialogue between representatives of the community, industry and the City about wise water use and industry’s ideas is essential and should be continued.

**S32) Investigate and promote alternatives to water softeners.**

Water softeners waste water through regenerations and needlessly introduce salts into the ecosystem. Effective alternatives to water softeners should be investigated and promoted.





## *Education/ Participation*

### **S33) Consider implementing conservation education programs.**

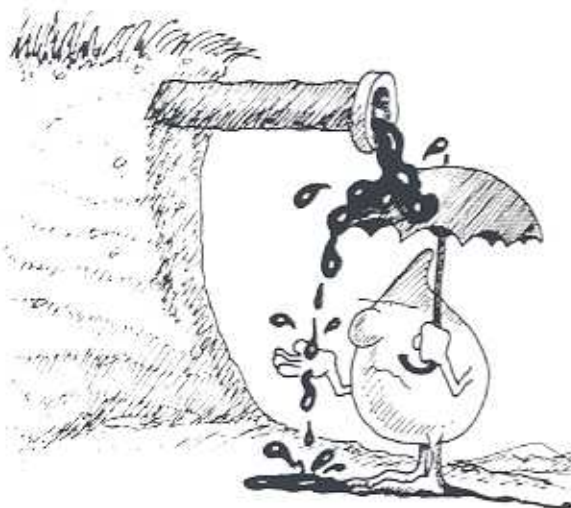
Conservation education programs should be directed at all levels of the community (residents, businesses, schools and industry) so that the community at large is able to make wise and efficient use of its water resource.

### **S34) Investigate methods of improving public participation in the decision making process.**

Public participation during the early planning stages of projects and policies that have the potential to impact the water resource is essential for informed and responsible decision making.

### **S35) Consider implementing contaminant education programs.**

All levels of the community should be educated about the proper use and disposal of hazardous materials and their effects on the natural environment. Citizens should also be informed about the need to eliminate non-point pollution from their activities on their properties, on public lands and on city streets, to prevent foreign substances that are harmful to aquatic life from entering the surface waters or groundwater.



From "A Primer on Fresh Water", Environment Canada, 1993

## *Planning Strategies*

### **S36) Protect wetlands and riverlands by continuing to develop an integrated planning process.**

The City administration must integrate planning to protect wetlands and riverlands during the planning process. The City and environmental planners should adopt an ecosystem approach in accord with the Great Lakes Agreement, where natural environments are permitted to coexist with adjacent lands developed for human use. To ensure their ultimate protection, appropriate natural areas should be redesignated as ESA, ANSI, etc. Another possible way of protecting these significant areas from development is through purchase and public ownership by the City, the GRCA and other agencies.

### **S37) Evaluate the potential for controlling stormwater runoff, and point and non-point source pollution through watershed planning and site specific storm water management plans.**

Planning policies related to municipal development and water supplies need to be implemented on a watershed basis to ensure the protection of water resources. Guelph's water supply and river flows are directly affected by activities in neighbouring and upstream watersheds. Encourage best effective management practices of water resources in adjacent watersheds.

Site specific storm water management plans are needed to minimize the amount of contaminated stormwater runoff that gets into stormwater management ponds, since these ponds ultimately discharge to streams or recharge areas. Self-sufficient, natural landscaping and groundcover techniques can be used to reduce runoff and to filter out contaminants.

**S38) Consider developing pricing policies that reflect the true cost of water.**

Water rates are set to cover the costs of supplying water to the customer including such tangible costs as development of wells, piping, and treatment. However, these costs do not reflect intangible costs such as the impact on natural systems by draw down and loss of aquatic habitat. Pricing of water to reflect all tangible and intangible costs would increase the cost to the user and encourage wiser use of the resource.

**S39) Consider identifying priorities for water use, in consultation with residents, business and industry.**

There are many possible uses for water, including drinking water, recreation, aquatic habitat and industrial uses. Some of these uses may conflict, such as the need to withdraw water for municipal supply and the need to maintain stream base flows to protect aquatic habitat. Established priorities for water use will assist decision makers throughout the planning process and in carrying out day-to-day water operations, especially when there are conflicting demands for water use.

**Resource Protection**

**S40) The City should consider including a commitment to protect natural systems, wetlands, streams, rivers, lakes and recharge areas, including suitable buffer areas, in the Official Plan.**

The Official Plan serves as the legal basis for land use planning decisions and the development of zoning bylaws. Protection of the quality and quantity of water resources and related systems can only be assured if there is suitable commitment and direction in the Official Plan.

Buffer strips are permanent bands of vegetated land designated around rivers and wetlands to protect or buffer the aquatic ecosystem from adjacent human activities. In addition to protecting these areas from disturbances to wildlife by adjacent activities, buffers reduce the amount of polluted runoff that enters the water, and slows the flow of surface runoff. Self sufficient natural landscaping and ground cover techniques could be used to enhance the effectiveness of the buffer area.

**S41) Research and implement wellhead protection strategies.**

The City should continue to develop land use planning policies designed to protect wellheads from development impacts.



From "A Primer on Fresh Water", Environment Canada, 1993



**S42) The City and the community should consider actively soliciting the cooperation of neighbouring municipalities and watershed authorities, to take measures to prevent pollution from agricultural activities.**

Non-point source pollution from agricultural runoff is the one of the primary contaminants of surface waters in southern Ontario. Runoff from unprotected lands can carry soils, fertilizers, pesticides, bacteria and organics from manures, introducing nutrients and contaminants into surface water and groundwater. Upstream activities must use best management practices such as conservation tillage and buffer strips. To prevent contamination and reduce stream bank erosion, streams should be fenced to eliminate livestock access.

Farm organizations and government agencies can be used to promote best farm management practices designed to protect water resources.

**S43) Assess and implement long and short term programs to restore and enhance wetlands, streams and rivers.**

The benefits of stream and wetland enhancement are multi-fold, and could include improved water quality, reduced soil erosion, improved wildlife and fish habitat and reduced health risks associated with some recreational water users.

Rehabilitation programs could include:

- naturalization
- removal of in-stream garbage
- allowing the river to follow its natural course, where possible
- erosion control measures
- removal of weirs
- removal of stoneworks that were built to hold up the river banks
- creation of riffles

- planting of trees and shrubs (a mix of natural species and shrubs should be planted to encourage diversity)
- fish habitat improvements
- fencing of rivers and streams to restrict livestock access and promote naturalization of these areas
- controlling land use activities around the rehabilitation site

Where engineered structures are required, bioengineering techniques should be promoted.

Communities and schools can assist by being involved in naturalization programs and stream cleanups. Programs to initiate stewardship of individual streams by schools and community groups have been successful in stream rehabilitation.

Floodplains, swales and former wetlands that have been drained for farming could be restored through land retirement, and left for natural reclamation by grasses and shrubs.

Incentive programs could be developed to encourage property owners to undertake projects that will enhance wetlands, streams and rivers on their own properties. The programs could be financial (such as grants, loans or tax rebates) or non-monetary (such as awards to recognize efforts, or education programs about water and land stewardship that would assist and encourage property owners to take action).

Planning policies and programs should encourage stream and wetland enhancement in development plans.

Adoption of a virtual elimination or zero discharge policy would also give the river systems a chance to recover and become a more natural environment.

**S44) Investigate methods of enforcing wastewater quality standards.**

Enforcement of water quality standards should be increased by enhancing monitoring programs and charging penalties or fines to polluters.

Although enforcement of wastewater quality standards is the mandate of the Ministry of Environment and Energy, the City should continue their surveillance of water quality standards.

In addition to increased enforcement, various incentives (e.g. public recognition, tax rebates, rate incentives) could be designed at the municipal level to reward water users who exceed the water quality standards or who make substantial improvement to overall water quality.

**S45) The City should continue to monitor the draw down of local municipal well, to help determine the effects that groundwater withdrawals are having on base flow to rivers and wetlands.**

Guelph takes most of its water from wells. The impacts of these withdrawals on natural systems needs to be determined in conjunction with current aquifer performance testing programs. "Draw down" is a measure of the decrease in the water table level that occurs by withdrawing water at a specified rate.

**S46) Support research to develop advanced and innovative technologies and methodologies. Encourage the use of newly proven methods and technologies, where appropriate.**

New technology and new methodologies are needed to achieve sustainable development, where both the environment and the economy can thrive in tandem. Alternatives or improvements must be found to existing processes and equipment, to improve water conservation and water quality. For example, alternatives to existing water softener technology should be found.

**S47) Explore alternatives to sodium chloride use for ice control.**

Road salt is transported by storm water runoff to wetlands, rivers and recharge areas, where it has a negative impact on water quality and vegetation.

**S48) Consider pursuing upgrades to water quality guidelines where there is evidence that such action is warranted.**

Historically, water quality guidelines established by the province have become more stringent as monitoring techniques allow detection of smaller concentrations of contaminants, or as new contaminants that have the potential to find their way into our water supply are identified. This trend should continue, and the City should target and assess water quality criteria where information is lacking.



## Chapter 2.3 - Environmental Issue #3

# Energy

### Background

Energy production and energy use result in a number of environmental impacts, including air and water pollution, land degradation, radiation and buildup of nuclear wastes. The combustion of fossil fuels leads to three main air pollution problems: global warming, acid rain, and urban air pollution associated with ground level ozone.



Global warming is now considered by a majority of scientific experts to be a dangerous reality. Global warming is caused by a build up of "greenhouse gases" in the atmosphere. These gases act as an insulator around the earth, essentially trapping the sun's energy and

physically warming the earth's atmosphere. Without significant action to reduce emissions of greenhouse gases (especially carbon dioxide), global warming is predicted to reach 2°C to 5°C over the next century. The warming is expected to be accompanied by a sea level rise of 30 to 100 centimetres (Second World Climate Conference, Geneva, 1990). Global warming will affect Ontario's economy and natural resources base, including water, soil and biota.

Acid rain is created when sulphur dioxide, created during the combustion of fossil fuels, is released into the atmosphere. Acid rain has created significant damage to the aquatic ecosystem. According to the Ministry of the Environment's "Countdown Acid Rain Program", province wide emissions of sulphur dioxide have been reduced by 60% since 1980. Significant progress is also being made in the United States.

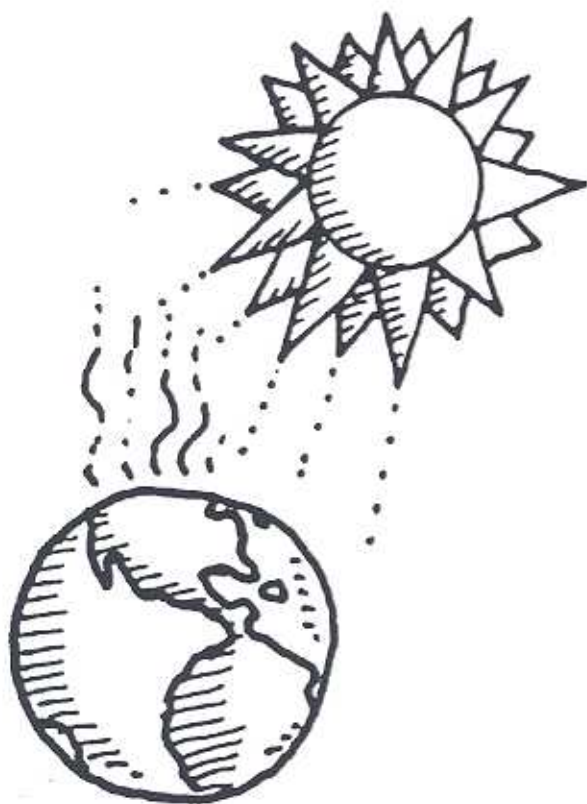
In summer months, more than half of all Canadians are regularly exposed to ozone concentrations above the maximum acceptable levels. During severe ozone episodes, people in some major Canadian cities have been advised to limit outdoor activity or stay indoors. Crop damage in Ontario alone from elevated ozone levels is estimated at up to \$70,000,000 per year. Ground level ozone is caused by the combination of nitrogen oxides and volatile organics that are released to the atmosphere. Nitrogen oxides are produced by the combustion of fossil fuels such as gasoline, diesel fuel, natural gas and coal, used in vehicles, construction engines, home heating, combustion turbines and power plants. Sources of volatile organic emissions include vehicles, refineries, chemical plants, and the application of paints and solvents.

### In this Section.....

|  | Page |
|--|------|
| Background .....   | 39   |
| Community Thoughts .....                                 | 40   |
| Guelph Context .....                                     | 40   |
| Provincial, National and<br>Global Contexts .....        | 41   |
| The Energy Challenge .....                               | 41   |
| Goals .....  | 41   |
| Objectives .....   | 42   |
| Community Suggestions for<br>Further Consideration ..... | 43   |

## Community Thoughts

Most of the concerns expressed by the community about energy relate to the need to improve energy efficiency in the home; to reduce CO<sub>2</sub> emissions generated through fuel consumption; and the associated impacts on global warming. Many comments were made about the concept of R2000 homes. A significant overlap was identified between energy consumption and transportation. The question of fuel switching (both for heating and transportation) was frequently raised.



## Guelph Context

Guelph's residential users account for 28.5% of the electrical energy used locally. General service users (commercial, retail, institutional and industrial) account for 54.7%, and large users (three businesses that consume over 5,000 kW) account for 16%.

Guelph Hydro operates as a municipal electrical utility. The Commissioners of the Board of Guelph Hydro are appointed annually by City Council. The Board sets policy for the utility, and approves annual budgets and rates (subject to regulatory approval by Ontario Hydro). Guelph Hydro purchases electrical energy from Ontario Hydro, and is responsible for distributing electricity within the City boundaries.

Guelph's natural gas is supplied by Union Gas, with 17,977 residential customers, 2,362 commercial customers and 282 industrial customers. For space heating purposes, 59.1% of Guelph residents use natural gas, 27.2% use electricity and 12.7% use oil.

Gas companies are regulated by the Ontario Energy Board Act. Union Gas is a private utility, unlike Ontario Hydro and Guelph Hydro. However, like the other utilities, its wholesale rates are subject to annual review by the Ontario Energy Board.

The City of Guelph has undertaken a number of retrofit projects geared towards energy conservation in municipal buildings. The projects include heat reclamation, over night temperature set backs, and conversions to more energy-efficient equipment. Guelph Hydro and the City are currently working to convert all street lights from mercury vapor to high pressure sodium lamps. Some of the City's fleet is fuelled by either propane or natural gas.



## Provincial, National and Global Context

Ontario uses more energy per capita than almost any other jurisdiction in the world. Ontario uses 33% of the total energy produced in Canada, and 87% of the total nuclear energy generated in Canada. Ontario Hydro generates 48% of its electricity from nuclear reactors, 30% from hydroelectric sources and 22% from fossil fuels.

In Ontario, industry accounts for 35% of energy consumption, transportation for 24%, residential for 19%, commercial for 14%, and 8% is used by others.

Canada is one of the most energy intensive countries in the world because of its cold climate, large land area, industrial and urban buildings, reliance on resource based industries that are heavy consumers of fossil fuels, and our wasteful habits. In Canada, 75% of the primary energy used comes from fossil fuels.

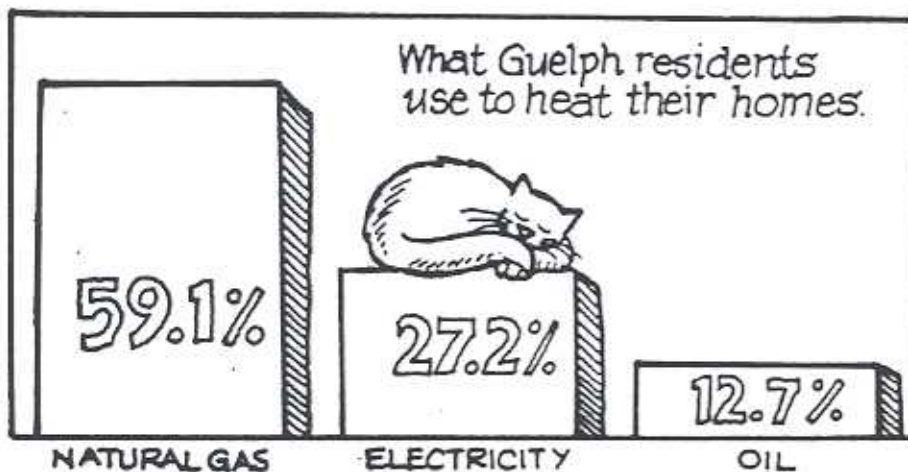
Ontario produces 1% of the global carbon dioxide (CO<sub>2</sub>) emissions, but 1/3 of Canada's emissions. Industry is responsible for 30% of Ontario's CO<sub>2</sub> emissions, while transportation produces 26%, the residential and commercial sectors account for 19%, and oil refineries and pipelines produce 5% of the emissions.

## The Energy Challenge

The Guelph community must work together to minimize Guelph's contribution to global warming, and other environmental effects of energy production and use.

## Goal

- G6) Reduce combustion emissions by decreasing energy consumption by the following targets by the year 2001:**
- reduce residential energy use by 10%, on a per capita basis
  - reduce commercial and institutional use by 10%, on a per square foot basis
  - reduce industrial use by 8%, on a per unit produced basis



## Objectives

- O16) Increase the energy efficiency of existing and new housing stock.**

Space heating needs can be significantly reduced by improving insulation values, reducing air leaks, and choosing more energy efficient heating systems and appliances.

- O17) Increase the use of renewable resource technologies and applications, such as solar water heating, and solar pool heating, etc.**

Improving technology and increased production is making solar power more viable, and this trend is expected to continue.

- O18) Encourage increased energy efficiency in all sectors.**

Any reduction in energy use is an achievement, whether it is due to improved efficiency in an individual home, or a significant reduction achieved by a major industry. Everyone has a role to play in reducing energy use.

- O19) Improve the accessibility of information and energy conservation programs to all sectors.**

Informed decisions are made by informed people. Considerable progress can be made by helping the community understand why it is important to reduce energy use, and suggesting ways that they can contribute.

- O20) Consider energy implications in future land use planning and site plan approval processes.**

Land use planning has the potential to significantly impact energy use. For example:

- site plan orientations can be designed to maximize solar heating benefits;
- integrated developments have the potential to reduce automobile use by allowing people to live closer to their places of work or to necessary services; and,
- higher density developments have the potential to use less energy for heating.

- O21) Support changes to regulations at the provincial level that are designed to promote energy efficiency or conservation.**

The majority of the factors that affect energy production and energy use are regulated at the provincial or federal levels. For example, the Ontario Building Code sets standards for building construction, and other legislation dictates automobile emission standards and fuel efficiency.

- O22) Promote methods of transportation other than the car.**

The community identified a strong link between energy use and transportation. A reduction in individual automobile use would result in decreased fuel consumption and related emissions.

- O23) Support the development of new technologies that improve vehicular fuel economy or that permit conversion to more efficient fuel sources such as natural gas or electric cars.**

New technology is needed to achieve sustainable development. Alternatives or improvements to existing processes and equipment must be found, to improve energy efficiency and conservation.



## Community Suggestions for Further Consideration

### *Please note:*

The following suggested activities or changes in process have been identified by members of the community and the writing committee as possible methods of achieving the Goals and Objectives. **The suggestions require further study to:**

- identify inconsistencies with the Goals and Objectives, and determine general feasibility (i.e., can the suggestion realistically be implemented, and will it have the desired impact?);
- identify overlap or conflict with existing programs or regulations (i.e., is it already being done? or are existing regulations in place?);
- determine economic soundness through a cost benefit analysis (i.e. what is it going to cost, who is going to have to pay, and who or what will benefit?); and,
- determine priorities for implementation.

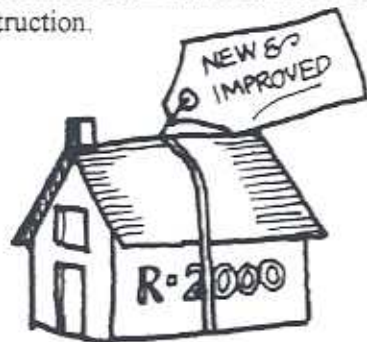
It is anticipated that the proposed Green Strategy Steering Committee, as proposed in Chapter 3, will have a critical role in evaluating these suggestions and in ensuring that detailed action plans are formulated. Through this evaluation process, it will be determined that some suggestions can be quickly accepted by all stakeholders, while other will require modification, and some may prove to be unrealistic.

### **S49) Consider creating an energy rating system for existing and new construction.**

An energy rating could be determined by factors such as existing insulation levels, size of home, and efficiency of mechanical systems. The home buyer could then compare the energy rating of alternative homes. Perhaps banks could be encouraged to provide lower interest levels for the highest performing housing.

### **S50) Assess the potential for making R2000 certification a minimum requirement for all new residential construction.**

The City could legislate all new residential development to meet a minimum standard of R2000 construction.



### **S51) The City should consider renewable resources as an option when upgrading or replacing heating systems for municipal facilities.**

For example, the City could consider installing solar pool heating systems when replacing existing public pool facilities.

Informing residents about existing renewable energy projects in Guelph could encourage them to undertake similar projects in their homes.

### **S52) Investigate methods of providing home owners with advice on energy reduction strategies.**

Use the expertise and resources offered within the community to provide energy assessments of homes, and to assist in financing home retrofits. Several organizations which offer such services are home building associations, libraries, community groups, utilities, and Guelph 2000.



**S53) Consider making energy implications one of the factors to be assessed when future developments are planned and approved.**

- When planning residential sectors, lots could be oriented so that passive solar home, water and pool heating designs could be used.
- District heating technology could be considered when planning new industrial parks.

**S54) Provide residents and businesses with advice on landscaping strategies that can reduce energy consumption.**

Proper landscaping can provide cooling shade during summer, and offset air conditioning requirements. Landscaping can also reduce heating needs in the winter by reducing wind loads on the building, effectively reducing fuel consumption.

**S55) Consider developing a civic multi-sectoral awards program that recognizes significant strides towards reducing energy consumption.**

Public recognition programs can be used to reward or thank those that have contributed towards reaching the goals set out in this Green Plan. The awards program can also be used as a media event to encourage others to participate. A civic awards logo could be developed, and recognized businesses could use the logo on their letterhead or promotional materials.

**S56) Where site orientation makes it feasible, consider requiring all new pools to be fitted with solar pool heaters (assuming a heating system is desired).**

Legislation could be introduced requiring all new pools be equipped with a solar pool heating system, where applicable.

**S57) Incorporate the topic of energy production, use and conservation in elementary and high school curriculums.**

Education is the key to informed decision making. The youth of today are the decision makers of tomorrow.

**S58) Develop a better process for delivering energy conservation information and assistance programs to the IC&I sector.**

An "Energy Forum" could be developed through the Chamber of Commerce, local utilities, and Guelph 2000. This agency could coordinate training and education seminars, provide a forum for the exchange of ideas and experiences, consider new technologies, provide a technical advisory network, and monitor energy use.

The commercial sector should be encouraged to use the expertise and resources of existing programs. For example, Guelph 2000 and local utilities can provide information regarding energy assessment of facilities, and they can also arrange for assistance in financing feasibility studies and retrofits.

**S59) Consider making building permits for renovations to IC&I facilities contingent on the completion of an energy audit.**

This will help encourage industry and business to reduce their energy consumption by retrofitting existing facilities, and by using more energy efficient equipment and processes. Currently, these audits may be free of charge from the Ministry of Environment and Energy through the GIAR Program (Greening of Industry Assessment and Retrofit) or through programs administered by local utilities.

The commercial and industrial sectors should be encouraged to build to higher energy efficiency standards, such as those outlined in ASHRAE 90.1.

The use of new technology and conversion to renewable resources, such as solar energy, should be promoted. Cogeneration systems, district heating systems and cleaner fuels may be applicable to some industries.

**S60) Consider monitoring fuel consumption patterns for all sectors, both in terms of individual consumers and the sector in general.**

This will help measure progress towards achieving existing targets, and can also be used to develop future targets and to identify new reduction strategies. Also, providing historical consumption information along with general trends will help the consumer view their consumption in perspective.

**S61) Consider promoting mass transit and other methods of transportation as alternatives to the car.**

One of the ways of reducing the amount of fuel energy consumed by car use is to reduce the amount that the car is used. Strategies suggested through the CIP are given below.

- Promote increased use of bicycles, walking, and bus and rail transit services.
- Ensure that bicycle and walking paths are well lit and safe.
- Consider creating bicycle and walking paths leading from new residential areas to the downtown area, industrial sectors and the university.
- For existing built-up areas, investigate changes that would facilitate walking and biking, such as turning two-way streets into one-way streets, which would allow one lane to be converted to bicycle and walking paths.

**S62) Assess the need to lobby higher authorities for changes to building codes and other legislation that could result in reduced energy consumption and related CO<sub>2</sub> emissions.**

As mentioned earlier, the majority of legislation regulating energy efficiency is set at the provincial and federal levels. The City can actively endorse and/or encourage new policies or regulations that promote energy efficiency or conservation. The City can also encourage other municipalities to follow Guelph's lead.

**S63) When appointing transportation of utility commissioners, consider using past experience and interest in energy efficiency programs and policies as one of the selection criteria.**

City Council appoints Councillors and members of the public to both the Board of Heat and Light and the Guelph Transportation Commission. If necessary, the City should actively recruit the representation of someone with demonstrated knowledge in this field.



## Chapter 2.4 - Environmental Issue #4

# Transportation

### Background

There used to exist a notion that in the future, there would be no need for public transportation or other alternatives to the car because, ideally, everyone would be able to afford a car of their own. The main objective of transportation has always been the ability to travel from point A to point B in the least amount of time, with comfort and convenience. These days, some people who can afford cars are voluntarily opting to use bicycles or buses, not only for the monetary savings, but for health and environmental reasons as well.

The environmental aspects of the transportation issue are closely linked to the energy and land use issues discussed earlier. Transportation methods that rely on the combustion of fossil fuels result in significant contributions to air pollution and depletion of nonrenewable energy resources.

The current trend towards urban sprawl, with residences removed from shopping and services, increases reliance on the automobile, requires the construction of new roads, and puts a strain on public transit systems. New roads consume additional lands, often bisect natural areas, and add to their pollution through runoff of contaminating substances such as oil and gas.



### In this Section.....

|  | Page |
|--|------|
| Background .....   | 46   |
| Community Thoughts .....                                 | 47   |
| Guelph Context .....                                     | 49   |
| Provincial, National and<br>Global Contexts .....        | 50   |
| The Transportation Challenge .....                       | 50   |
| Goals .....  | 50   |
| Objectives .....   | 51   |
| Community Suggestions for<br>Further Consideration ..... | 52   |

Transportation has significant costs, some that are quite obvious, and others that are more difficult to calculate. Costs of roads, cars, trucks and trains are fairly easy to determine. The costs of deaths and injuries and pollution are more difficult to assign values to.

## Community Thoughts

### General

The input from the CIP indicates that the community wants to have access to a better range of transportation alternatives, where the alternatives to automobile use provide an environmental benefit without the significant sacrifice in accessibility and convenience that current alternatives offer most people. They felt that the current level of development of alternatives such as biking, walking and public transit was significantly lacking, so that these methods do not really represent an alternative for most automobile users. They felt that these alternatives needed to be improved to encourage more people to use them. The participants also felt that fewer new roads and parking lots would result in a more aesthetically pleasing City, and that money could be saved by limiting the construction of new roads.

In addition, CIP participants felt that transportation planning in the City has focused mainly on the car and commercial truck traffic. They felt that the planning process should be broadened and realigned, to include increased consideration of alternatives such as rail, bus, bicycle and pedestrian modes of transportation.

### Cycling

Participants in the CIP expressed strong support for bike lanes and paths, to be integrated with both the neighbourhood transportation networks and the primary City-wide transportation system. Of special concern was the need for improved bicycle access to the University and a bicycle path for the Gordon Street corridor. The participants also stated the need for improvements in bike parking facilities, and safe bike storage at train and bus stations. Many residents suggested that a City cycling coordinator is needed, along with improved bicycle safety education programs.

### Pedestrian

The results of the CIP show that many members of the community feel that the pedestrian has essentially been forgotten in the local transportation planning process. There were many suggested ways of promoting walking as an alternative method of transportation, including improving and increasing the number of sidewalks (especially in older developed areas where sidewalks may not be as numerous), walkways and crosswalks, making the streets and intersections more pedestrian friendly, and allocating a portion of City staff resources to the position of pedestrian coordinator.

Two other studies, both with significant public involvement programs, have made recommendations that relate to pedestrian transportation:

- *Public streets and places used by the public will be planned to meet the needs of pedestrians and be designed to be safe, vibrant, and accessible to all, including the disabled (from Sewell Commission).*
- *Provide continuous public pedestrian access along the Speed and Eramosa Rivers. Road crossings should also be planned to allow continuous trail access by all users and to minimize conflict with vehicles. Generally, pedestrian crossings should occur at grade with person-activated signals (from the River Systems Study).*

### Public Transit

CIP participants expressed strong support for increasing city bus ridership through improvements to the system, such as more frequent service, late night service, requested stops for getting on and off, bus shelters, and more space for baggage, bikes, strollers, etc. Specific suggestions regarding routing included: using a grid system, moving the transfer station



out of the city centre, and soliciting more public input during route development. Suggestions on increasing ridership included providing a University shuttle service, yearly bus passes, extending routes with a private minibus service and subsidized fares.

**Car**

The CIP input stressed the need for more alternatives to car travel and more responsible use of private vehicles. It was suggested that car pools, full coverage of costs by car owners, and alternative fuel sources would contribute to a more efficient use of private vehicles.

Participants suggested that City designs should focus less on car use, with "green" roads and ring roads, a limited access core, slower, narrower roads, and parking behind malls to make malls and adjacent streets more pedestrian friendly. It was suggested that flex time by employers could reduce rush hour traffic and the need for more and wider roads.

Several participants expressed concern about excessive speeds on residential streets. Many people suggested that "traffic calming" be used to reduce speeds. Traffic calming can include the redesign of streets and streetscapes to force cars to move more slowly.

**Commercial/Industrial**

Participants in the CIP expressed significant concern about large transport trucks using City streets, especially through the inner-city area. Pedestrians and bicycle users are intimidated by large trucks and question the safety of sharing the roads with these vehicles. They also noted that traffic congestion is often caused by slow moving trucks. Residents indicated that they would like to see better enforcement of truck bans on restricted roads. A ring road system was often suggested as one possible approach for alleviating commercial traffic in the inner city.

Participants also expressed the need to promote rail use as an alternative to large transport trucks.

**Passenger Rail**

Participants expressed strong support for more frequent and improved train service.

**The Transportation Planning Process**

Participants in the CIP felt that there is a need to improve the integration of community concerns in all aspects of the transportation planning process. Many people expressed dissatisfaction with the way their concerns were being handled by the City, in that they felt that their concerns received only token attention. Although they have the opportunity to pursue the matter with City Council, they felt that this route was slow and cumbersome. Many people also expressed concern that insufficient consideration was given to protection the natural environment during road reconstruction.

Many CIP participants were critical of the City's recent draft Transportation Plan. They felt that it focused almost exclusively on the car, and failed to adequately address their concerns about unnecessary road and intersection widening, poor route selection, the need to divert heavy traffic away from the downtown core, and the need for better coordination and integration between land use planning and transportation planning. There were also concerns that the Transportation Plan did not incorporate any environmental planning targets or objectives. It was suggested that if public input had been sought earlier in the planing process, perhaps even during the formulation of the Terms of Reference, then the Transportation Plan would be a better reflection of community needs and desires.



## Guelph Context

The City's Engineering Department is responsible for transportation planning in Guelph, and has recently undertaken the development of a Transportation Plan Update, called the Guelph and Area Transportation Study. The study is currently in the draft review stage, and has not yet been adopted by City Council.

During the past 20 years, there has been a marked trend toward suburbanization in Guelph, with rapid growth resulting in low population density developments and malls in outer areas. The south end of Guelph is essentially a bedroom community, with many residents commuting to Toronto. There has been a trend toward decentralization, with retail infrastructure shifting from the downtown area to the suburban malls. All of these factors, together with an increasing population, have resulted in increased stress on Guelph's transportation system.

Like any City, Guelph is serviced by a mix of highways, arterial roads and residential roads. Highways #24, #7 and, to a lesser degree #6, are designated as intercity links, and as a result some intercity traffic passes through the inner city, resulting in an "industrial" feel in the city centre.

A total of 22,934 bicycles have been registered in Guelph during the last 10 years. However, there is no data available on how many of those bicycles are still in use, or what the breakdown might be between those used for casual recreation versus those used as primary or secondary modes of transportation.

The Guelph Transportation Commission (GTC) provides and manages all public transit services in the City. Members on the Commission are appointed by City Council. Public transit ridership currently averages 16,000 trips per day, or approximately 6.5% of the estimated 245,000 trips in the City. The GTC is trying to increase the public transit modal split from the current 6.5% to 10% by the year 2011, so that public transit will account for 44,000 of the estimated 440,000 trips made every day in 2011.

Intercity public transit is provided through bus and limited VIA rail service. GO Transit rail service was recently discontinued due to insufficient use. GO bus service connects Guelph to Ontario's GO Train service.

Guelph is serviced by two local airports: the Guelph Airpark and the Waterloo-Guelph Regional Airport. National and international flight service is provided by the Pearson International Airport in Toronto.

The present problem with trucking is complex. Commercial and industrial sites are located throughout the City. These sites require truck transportation services, and in many cases, the access to these sites is through residential areas. The provincial government has permitted the trucking industry to extend the length of truck-trailer combinations, resulting in even larger vehicles moving through residential areas.

The City of Guelph also owns a federally chartered railroad, known as the Guelph Junction Railway Co. CPR and CNR lease the rights to use the line, which currently services several of Guelph's industries and ships an average of 1000 cars per year. Passenger service was discontinued in the early 1960's when Canadian Pacific discontinued its passenger business.



## Provincial, National and Global Context

The combustion of fossil fuels is extremely polluting. Our current transportation strategies depend heavily on this energy source, and as a result, transportation accounts for one third or more of man-made carbon dioxide, one third of nitrogen oxides and volatile organic compounds and two thirds of carbon monoxide. The current transportation system is not sustainable, because it is dependent upon fossil fuels, a nonrenewable resource.

There are 4.6 million cars and 1 million trucks in Ontario.

Car travel results in one quarter of a million deaths per year globally, with several million injured or permanently disabled.

The provincial government now provides some financial assistance for bike lanes, bike racks and local promotions geared towards cycling. The provincial bike policy, announced in the summer of 1992, concentrates on two areas: commuter cycling in urban areas, and recreational cycling on highways in tourist corridors.

It costs an estimated \$1 million to widen 1 kilometre of highway from 2 to 4 lanes, but less than \$15,000 to add a bike lane in each direction while repaving.

### The Transportation Challenge

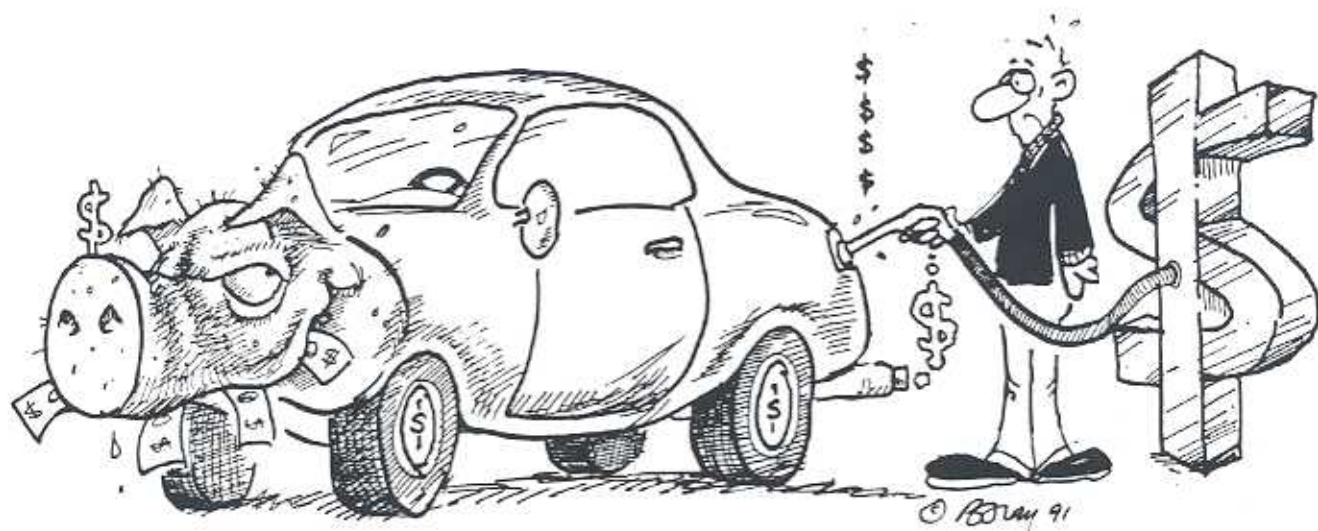
The Guelph community must redirect itself towards a transportation policy that has a balance between the car, bicycle, pedestrian and public transit (bus and rail). In terms of commercial transport, balance between truck and rail should be emphasized.

### Goals

- G7) Reduce environmental impacts from transportation such as air emissions, noise, deaths and injuries, land use and damage to natural systems.
- G8) Increase the accessibility and attractiveness of alternative means of transportation.
- G9) Integrate public concerns about transportation in all stages of the planning process.
- G10) Improve the integration of planning efforts between various City departments, and between the City and provincial and federal governments.

## Objectives

- O24) Solicit and use public input at all stages of the transportation planning process, from the formulation of terms of reference through to design and implementation. Neighbourhood input regarding local needs for items such as crosswalks, stop signs or speed limits, and preservation of trees during road reconstruction, should be given serious consideration in the design process.
- O25) Improve bike, pedestrian and mass transit access to major institutions and commercial centres, such as the University, the downtown core and major shopping centres.
- O26) Reduce the impact of vehicular intercity through-traffic on other methods of transportation in the inner city areas.
- O27) Improve the safety of alternative transportation modes, particularly bicycling.
- O28) Consider all environmental impacts, including quantitative evaluations of emissions, deaths, accidents, injuries and fuel consumption, when comparing alternative transportation plans (environmental accountability).
- O29) Improve the integration of alternative methods of transportation into the City's transportation network by improving the coordination between the City's Engineering, Planning and Recreation and Parks Departments, and the Guelph Transportation Commission. Planning must also be coordinated with provincial and federal transportation planning agencies.





## Community Suggestions for Further Consideration

### *Please note:*

*The following suggested activities or changes in process have been identified by members of the community and the writing committee as possible methods of achieving the Goals and Objectives. The suggestions require further study to:*

- identify inconsistencies with the Goals and Objectives, and determine general feasibility (i.e., can the suggestion realistically be implemented, and will it have the desired impact?);*
- identify overlap or conflict with existing programs or regulations (i.e., is it already being done? or are existing regulations in place?);*
- determine economic soundness through a cost benefit analysis (i.e. what is it going to cost, who is going to have to pay, and who or what will benefit?); and,*
- determine priorities for implementation.*

*It is anticipated that the proposed Green Strategy Steering Committee, as proposed in Chapter 3, will have a critical role in evaluating these suggestions and in ensuring that detailed action plans are formulated. Through this evaluation process, it will be determined that some suggestions can be quickly accepted by all stakeholders, while other will require modification, and some may prove to be unrealistic.*

## Transportation Planning

### **S64) Consider implementing a Transportation Advisory Committee**

Many participants in the CIP expressed frustration about their dealings with the City and their opportunities for input into the transportation planning process. At the neighbourhood level, there is a sense of impotence when it comes to getting local transportation changes such as crosswalks, traffic lights, reduced speed limits etc. Many people expressed the need for a the City to allocate staff resources to coordinate both cycling and pedestrian planning. Based on this input, it appears that some method of incorporating public input and democratizing the transportation planning and implementation process is needed at the earliest and most fundamental level, perhaps even during the formulation of the Terms of Reference for new studies. Incorporating public input at the earliest planning stages would hopefully avoid, and at least reduce, the endless public consultation and confrontation that takes place after a plan is put forward that is contrary to the public desires.

One possible solution is that a transportation advisory committee be established, with public representation from each Ward. The public in each Ward could approach their member of the committee with suggestions or concerns. The committee would make recommendations on behalf of the public to City Council. The committee would also assist the Engineering Department in the formulation and review of all terms of reference for transportation related projects. The committee could form a subcommittee of the Green Plan Implementation Committee that is recommended in the Implementation Strategy (Chapter 3). This would help ensure that transportation concerns are integrated with other planning processes.

It is possible that existing neighbourhood groups could help fulfil this function, by liaising with the proposed Transportation Advisory Committee, especially if they are provided with information about how they can bring their suggestions forward to the City. However, the Transportation Advisory committee is needed to provide a broader structure that looks at transportation planning as a whole.

A Class Environmental Assessment (Class EA) must be carried out for any major transportation related project. The Class EA process includes requirements for public consultation, including public notification of the commencement of the study. Ideally, this first public notification should take place during the development of the Terms of Reference for the study. It is possible that at this point, a public advisory committee could be developed to help obtain public input early in the planning process.



#### **S65) Research and develop a carbon dioxide planning target.**

The world conference, The Changing Atmosphere: Implications for Global Security, held in June 1988, established a target of 20 percent reduction of carbon dioxide emissions by the year 2005. Based on Guelph's medium population growth scenario, local carbon dioxide emissions from transportation could increase by 23% by the year 2005 if changes in transportation planning and implementation are not made (see calculations in Appendix C). In this context, Guelph should set its own realistic carbon dioxide emission targets for transportation.

The 20 percent carbon dioxide reduction target may be achievable, even with the anticipated population increase. During the ten year period from 1980 to 1990, Canadian gasoline demand and corresponding carbon dioxide emissions dropped, despite an increase in the number of cars and the average trip distance. This was due to a 28% increase in car fuel efficiency (Toronto Star, November 27, 1992).

While Guelph has little influence over policies governing increases in car efficiency, it is anticipated that car fuel efficiencies will continue to increase. If car efficiencies increase by 35% by 2005, and mass transit, pedestrian and bicycle trips are increased with by 2, 5 and 4.5% respectively (with a corresponding decrease in car trips), carbon dioxide emissions could actually decrease by 24% compared to 1992 levels (see App. C)



**S66) Consider assessing all environmental impacts when comparing transportation alternatives.**

Any transportation planning study should quantitatively evaluate all impacts of each alternative, including:

- emissions such as carbon dioxide, nitrogen oxide, carbon monoxide and noise;
- traffic accident rates, deaths and injuries;
- all costs, both tangible and qualitative (full cost accounting);
- traffic congestion; and,
- damage to natural systems (such tree removal or habitat disruption).

Some suggestions for calculating and using emission and accident rate data are included in Appendix C.

***Pedestrian/Cycling***

**S67) Investigate methods of improving bicycle, pedestrian and mass transit access to the University.**

Some of the peak transportation loads in the City can be attributed to the University. The University provides an excellent opportunity to promote alternative methods of transportation. University students are generally receptive to alternative transportation methods. They tend to have low incomes, be physically fit and aware of the environmental repercussions of excessive and unnecessary car use. Yet the infrastructure for bicycles, pedestrians and public transit to access the University is severely limited. For example, none of the access roads to the University qualify as safe cycling routes using objective lane width criteria specified in the Journal of Transportation Engineering, and existing points for road crossings are unsafe.

Improving access to the University will reduce peak loads on University access roads. A proposal for bicycle lanes on Gordon/Woolwich Street, driven by strong support from the community, is a step in the right direction. A final commitment to implement this proposal is strongly encouraged.

**S68) Consider modifying intersection designs to make them more pedestrian friendly, to help encourage the pedestrian mode of transportation.**

In the past two decades there has been a trend towards widening of intersections, inclusion of right turn lanes, reduction of corner curb angles and automated traffic lights. This often creates walls between people and their neighbours, their parks and their stores. While many of these practices have been done to improve the vehicular efficiency of the intersections (thereby reducing the need to add extra lanes along the entire road length), they also tend to make intersections less pedestrian friendly, as evidenced by comments made by participants in the CIP.

Pedestrian actuated crossing signals do provide pedestrians with some control over traffic flow. However, many people choose not to activate the crossing signal, and this means that traffic flow is governed by vehicular traffic. Some of the pedestrian actuated crossing signals are placed in locations that require the pedestrian go out of their way to push the button - this is very inconvenient for slow walkers.

New road and intersection design standards are currently under development in the United States. The City of Guelph should review its current intersection modification practices and attempt to improve existing pedestrian unfriendly intersections.



**S69) Investigate methods of encouraging increased pedestrian travel in the downtown core.**

Many people avoid shopping in the downtown core because they feel that the stores are not conveniently accessible. Many shoppers drive from store to store, looking for parking in close proximity to the store that they want to visit. However, the downtown areas could be compared to an outdoor mall - walking distances are similar to those in Stone Road Mall. Encouraging increased pedestrian travel in the downtown area will benefit merchants and reduce combustion emissions.

Improved central parking facilities and an education program designed to encourage people to use them, would improve the convenience of shopping in the downtown area, and make better use of this existing commercial infrastructure. By encouraging people to park their cars in one location (and leave them parked) while they shop, total car travel and idling times could be reduced, and walking would be encouraged.

**S70) Investigate methods of improving the availability and quality of bicycle safety programs, to encourage this alternative mode of transportation.**

Some participants in the CIP said that reduced bicycle safety was one of the possible obstacles to using this form of transportation. Cycling skill is the primary factor in bicycling accidents. Bicycle safety programs in schools could be improved and offered to the general public. The CANBIKE program offered by the Ontario Cycling Association is an excellent example.

**Public Transit**

**S71) Investigate methods of improving the convenience, accessibility, attractiveness and economic viability of the public transit system.**

The GTC will be trying to increase public transit use from 6.5% to 10% of all vehicular trips by the year 2011, or from approximately 16,000 rides per day to over 44,000 rides in 2011. However, the transit is currently serving a distinct minority of transportation consumers in the City. There are some fundamental problems that must be addressed before this increase can be realized, including the social issues of convenience, travel time, comfort, riding with strangers in close physical proximity, and the public perception of a lower class form of transportation. Unfortunately, the designers of public transit systems are often people that never use the transit system.

From the input received through the CIP, reasons that some people do not use the public transit system include inadequate or inconvenient service. With modifications, the Guelph transit system could potentially achieve significant increases in ridership, which could ultimately decrease the number of single passenger cars and the related environmental impacts.

Some specific suggestions for improving the public transit system are provided below.

- Review the current routing pattern of buses and the location of the central transfer area (currently St. George's Square). Increases in population and the distribution of potential riders may favor a grid system over a the existing radial routing system.
- Investigate the feasibility of increasing the frequency of bus service and the hours of operation. Many comments were received about buses being too infrequent, and not being available on Sundays, holidays or later at night.
- Consider using large buses at peak times and smaller vans other times.



- Develop a combination of appropriate encouragements to increase bus use and disincentives for automobile use, such as:
  - offering a bus pass that is cheaper than a parking pass;
  - offering monthly bus passes
  - encouraging employers to subsidize ticket costs and offer them at a cheaper rate for employees.
- Permanently install enlarged versions of the Official Bus Map in downtown bus shelters, the Gray Coach Terminal and VIA station for the benefit of tourists and new transit users.
- Improve the efficiency of bus travel. The bus is one of the most efficient users of road space. At peak times a bus can carry as many people as 60 cars, but needs only one-twentieth of the road space. When traffic congestion occurs, bus passengers can be penalized when buses are delayed. Some suggestions of improving this include:
  - where congestion occurs, investigate the possibility of implementing a preferred status or preferred route;
  - install transponders on buses to signal an approaching bus to traffic lights so they will change early. This could significantly increase time efficiency for the buses.

### ***Commercial/Industrial Traffic***

#### **S72) Investigate possible methods of reducing the impacts associated with truck traffic, such as:**

- locating future industrial sites closer to major highways, or on a service road with direct access to major highways;
- continuing to encourage the centralization of heavy industry in three main industrial areas, to discourage scattered industrial development;
- accessing new or existing industrial sites with centralized rail services, such as the existing City-owned railway; and,
- restricting through-truck traffic to designated streets and enforce these restrictions.

#### **S73) Investigate the potential for maximizing use of the Guelph Junction Railway.**

The City of Guelph is the only municipality in Canada to own a federally chartered rail road, known as the "Guelph Junction Railway Co." This line services several of Guelph's industries and ships an average of 1000 cars per year. Passenger service was discontinued in the early 1960's when Canadian Pacific discontinued its passenger business.

Canada's railway industry is undergoing a radical change in the way it does business, following the lead of the U.S. railway industry. There has been a tremendous increase in the creation of smaller "short-line" operators that act as feeder lines to the Class 1 carriers. By allowing smaller companies to operate these branch lines, the large rail companies have been able to down-size management and labour to a manageable service, while the smaller company shares in the revenue and provides better customer service. The ultimate result is increased use of rail services, decreased abandonment of existing lines, and reduced truck traffic.

One of the reasons that the trucking industry has overtaken the rail industry is because highways and roads are fully subsidized by various levels of government. Railways are not subsidized, and they must pay land taxes, maintain right of ways and generally do not have the opportunity to access new industrial sites.

Guelph has the potential to capitalize on this industry shift by making better use of the Guelph Junction Railway (GJR). The GJR could continue to operate in its current fashion, or it could be leased to an independent company or a local operator. Leasing would provide the opportunity to modernize the rail service with an intermodal freight system, which would streamline movement of cargo by combining the use of containers, piggyback truck trailers and roadtrailers. Mass transit and recreational users could also be introduced to the present line.

Suggestions for improving the viability and use of the GJR include:

- Remove or reduce land taxes on railway lands.
- Include local railways in future municipal transportation policies and plans. New roads could share rail right-of-ways to access industrial sites such those in the Hanlon industrial park.
- Establish a rail-bus service on the Guelph Junction Railway, and link it with the Milton-Toronto GO Train and Guelph Junction. The Milton-Toronto GO Train service is expected to become an hourly service in the future.

**S74) Investigate the possible benefits of redirecting intercity through-traffic away from the inner city area by relocating the intercity links (currently Highways #6, #7 and #24).**

There was considerable public concern about the need to direct heavy traffic away from the inner city. Participants in the CIP felt that reducing the amount of vehicular through-traffic passing through the inner city would increase its accessibility by alternative methods of transportation, and that reduced traffic congestion would result in reduced emissions. However, according to the Transportation Plan, the amount of intercity through-traffic using these roads in the vicinity of the inner city is only in the order of 10%, with the remainder of the traffic headed for destinations in the immediate area. If this traffic distribution pattern changes, or if congestion increases, the issue of relocating the intercity links should be reexamined.



## Chapter 2.5 - Environmental Issue #5

# Waste Management

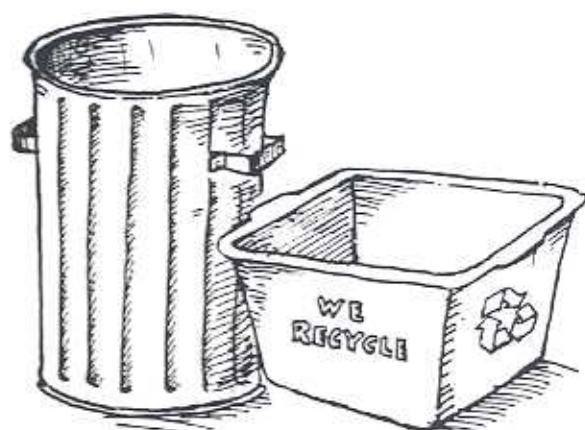
### Background

Perhaps no other environmental issue is as indicative of a consumer society than solid waste. Slowly, over the past century, society has come to equate consumption with a high standard of living. The more goods we consume, the more luxurious our life-styles become. However, the more we consume, the more we waste.

Unfortunately, there are significant environmental impacts from this consumption and waste. Products made from valuable natural resources are simply discarded after their use, creating a continual demand for these resources which, in turn, depletes both renewable and nonrenewable resources. Products that are still usable, in need of small amounts of repair, or that can be recycled are thrown away in spite of their potential value.

Furthermore, the philosophy of "out of sight, out of mind" which prevailed for years, has finally caught up with us. Landfills which were once thought of as harmless are now sources of pollution, and processes for siting new landfills are being met with great opposition.

Consequently, there is a great need to divert as much waste from disposal as possible, to improve the method of disposal, but more importantly, to reduce the total amount of waste generated.



### In this Section.....

|  | Page |
|--|------|
| Background .....   | 58   |
| Community Thoughts .....                                 | 59   |
| Guelph Context .....                                     | 59   |
| Provincial, National and<br>Global Context .....         | 60   |
| The Waste Management Challenge .....                     | 61   |
| Goals .....  | 61   |
| Objectives .....   | 62   |
| Community Suggestions for<br>Further Consideration ..... | 67   |

## Community Thoughts

The community involvement program (CIP) has clearly shown that waste reduction is a high priority with the residents and businesses of Guelph. The community is very aware of waste management issues. A significant number of constructive ideas and suggestions about reducing the amount of waste generated and the environmental impacts associated with waste generation and disposal have been made.

One of the predominant community themes was that the management of waste needs to be a shared responsibility. Many of the thoughts that were expressed called upon the need for some other person, organization or business to take action. In reality, there is need for each resident, business and commercial establishment, in conjunction with the municipal government, to work cooperatively towards a common goal: that is, to use all resources with maximum efficiency and minimum waste.

The community fully supported reduction, reuse and recycling, including composting, as the tools to be used to reach that goal. As well, the community suggested that a combination of regulations, economic incentives and voluntary cooperation be used to encourage all users of the waste management system to do their part.

The Guelph community also expressed concern about the way that household hazardous wastes are used, stored, collected and disposed. They stressed the need for a more efficient waste management system that could effectively deal with hazardous wastes in order to protect the environment and enhance public health and safety.

## Guelph Context

Until the early 1980's, Guelph's waste management system was simple. It consisted of collecting waste and disposing of it in landfill sites. A few people chose to recycle, or to create a compost heap in their backyard, but for most people, waste management meant putting garbage at the curbside or at the rear of a factory where it would be picked up and taken to the landfill.

Increasing awareness of environmental concerns and dwindling landfill capacity in both the County of Wellington and the City caused the County and the City to commence a joint Waste Management Master Plan (WMMP). The WMMP, which was adopted by the County and the City in January 1993, established a system for managing solid waste for a 25 year period, and includes the following components:

- a waste reduction action plan
- a wet-dry recycling and composting program
- an inert material disposal site
- landfilling of the wet-dry residues and other non-processable wastes

In addition, the system allows the possibility of energy recovery from the incineration of combustible residues and non-processable wastes after a review period and depending on permissive legislation.

In 1982, the City commenced curbside newspaper recycling and a drop-off recycling depot was also established. In 1987, the City began its "blue box" recycling program. In 1993, 6% (by weight) of Guelph's waste was diverted through this program, while another 8% (by weight) was diverted through IC&I recycling programs (source: City of Guelph Engineering Department).



By comparison, when the wet-dry recycling program is implemented, it is anticipated that the diversion of waste from landfill will approach 60%. In the wet/dry system, waste will be collected in two streams. The "wet" stream will consist of compostable materials which will be processed in a closed environment. The "dry" stream will consist of all other materials, and will be sorted at the wet/dry facility to remove recyclable materials. The wet/dry system should be ready for operation by late 1995.

While the City has made excellent progress in diverting waste from landfill, it still faces the problem of finding a new landfill to replace the Eastview site, which is licensed to operate until 1998. In the past decade, three areas outside the City have been identified as potential sites. Two of these sites were rejected, while the third is still under review. A new committee, known as the Landfill Search Group (LSG) was recently formed to identify new landfill space within the City limits.

## Provincial, National and Global Contexts

Efforts across the globe to address waste management problems are as diverse as they are numerous. In Europe and Japan, a large percentage of the waste is incinerated. In-vessel composting has met with some success in Europe, while curbside recycling and backyard composting programs are beginning to make progress in the U.S. and Canada. On a per capita basis, Canada and the U.S. generate twice as much waste as western Europe.

In Canada, the most common method of diverting materials from landfill has been recycling. Although composting is beginning to increase, most material that can't be recycled through local programs currently ends up in landfill. Certain protocols and plans initiated across Canada, such as the National Packaging

Protocol, the Canadian Waste Exchange, and the federal Green Plan, have attempted to concentrate their efforts on reduction and reuse, in addition to recycling.

Over the past decade, initiatives for proper waste management at the provincial level have been numerous. The "blue box" program, a curbside recycling initiative, began with a pilot program in Kitchener in the early 1980's and soon after spread across the entire country and the U.S. A number of non-governmental organizations, such as the Recycling Council of Ontario, were formed to improve communication and awareness of waste management solutions. In April 1991, the provincial government placed a moratorium on incineration and a goal of 50% waste diversion from landfill by the year 2000 was established.

The provincial government has recently passed new 3Rs regulations under the Environmental Protection Act. This series of regulations requires municipalities to implement blue box recycling and composting programs, and requires members of the IC&I sectors to perform waste audits and to implement waste reduction work plans.

Even with all of these potential solutions, the fact remains that a total of 10 million tonnes of waste is buried in Ontario landfills each year. Forty percent of this total is generated by the residential sector, while the remaining 60% is created by the IC&I sectors (Ontario's Waste Reduction Action Plan, Background, MOE, 1991).



## The Waste Management Challenge

The Guelph community must work towards an efficient waste management system that strives for the elimination of waste, based on a hierarchy of reduce, reuse and recycle. The system must be economically sustainable, recognize the need for shared responsibility between the residential and business community, and minimize the negative impacts on the environment.

### Goals

**G11) Minimize, and ultimately eliminate, the need for future landfills through aggressive 3Rs programs (reduce, reuse and recycle). These programs should strive to:**

- minimize waste generation, recognizing that source reduction is preferred to reuse and recycling;
- maximize diversion from landfill through reuse and recycling efforts;
- minimize the amount of organics going to landfill; and,
- minimize the use hazardous products and the production of hazardous waste by all sectors of the Guelph community.

**G12) Create a fundamental shift in the community's attitudes towards waste generation and disposal, working towards a conserving society.**

**G13) Ensure that when landfilling is necessary, it is undertaken in a manner that minimizes environmental impacts.**

**G14) Ensure that household hazardous waste disposal is properly managed, and that the public becomes more aware of the potential hazards associated with the improper use, storage, collection and disposal of hazardous household chemicals.**

**G15) Work towards a waste management system that is financially self-sufficient, where the costs of operating the system are completely supported by the users of that system. It will be necessary to:**

- develop a user pay structure that is based on all of the costs of operating the waste management system;
- develop a recycling infrastructure that is financially self supporting;
- provide effective incentives to residents to reduce waste;
- encourage the further development of recycling industries in the City to provide economically sound markets for recycled materials; and,
- improve the marketability of recycled materials in order to "close the loop" on recycling, to make it more financially viable.

**G16) Increase and improve public involvement and participation in decisions regarding waste management practices.**



## Objectives

### **O30) Support informed decision making and participation in waste management programs through improved information, education and public involvement programs.**

The comments received through the CIP suggest that there are five major themes to be considered here: values education, opportunity awareness, instruction, incentives and public involvement in decision making.

#### *Values Education*

One of the necessary steps in changing the community's attitudes towards waste generation and disposal is teaching them why things need to change. To encourage a conserving society, it is necessary to:

- educate the community about the principles of ecology, (so they understand the importance of waste reduction);
- promote cradle to grave (life cycle) materials management programs ;
- increase community knowledge of the benefits of composting;
- encourage an attitude shift towards purchasing less and buying in bulk;
- promote the purchase of goods with little or no packaging, and discourage the purchase of over-packaged goods;
- encourage the use of reusable or recyclable goods and packaging, and discourage the use of single-use disposable products and packages;
- encourage the purchase of second hand goods, and the purchase of goods packaged in reused containers; and,
- promote the use and purchase of goods made from recycled materials, to ensure an end market for recycled materials.

#### *Opportunity Awareness*

In order to maximize community participation in waste diversion programs, the community has to be aware that the programs exist. To this end, it is necessary to:

- heighten the awareness and accessibility of reduction, reuse and recycling opportunities at both the community and individual levels;
- improve the distribution or delivery of information to all members of the community; and,
- encourage and promote the 3Rs to all sectors of the community (including residents, students, community groups, the workforce and business), with source reduction identified as the priority, followed by reuse, and then recycling.

#### *Instruction*

In addition to making the community aware of opportunities to participate in waste management programs, they need information on how to participate effectively. Some of the suggestions from the community have included:

- provide examples and ideas of waste reduction and reuse strategies, and information on recycling; and,
- develop a public education and communication campaign designed to make residents aware of alternatives to hazardous products, proper storage techniques, and the dangers to the environment and public health that can result from improper disposal.

### ***Incentives***

Perhaps one of the best incentives for increasing public participation in waste management programs is educating the participants about the environmental benefits of the program. Other suggested incentives included:

- place equal emphasis on both large scale programs undertaken by institutions and businesses, and the efforts undertaken by individuals - every person can make a contribution;
- provide awards or some other form of public recognition for those who participate;
- use financial rewards (savings) or deterrents (taxes) to encourage participation.

### ***Public Involvement in Decision Making***

The community has expressed a strong desire to be more involved in the waste management decision making process, and it is now recognized that this involvement is crucial when developing programs that require public participation or support. It will be necessary to:

- increase and improve public involvement and participation in decisions regarding waste management practices;
- provide education about the opportunities and the processes available for public input;
- solicit community input early in the decision making process, and provide opportunities throughout the process; and,
- provide the community with the opportunity to be involved in the monitoring programs.

### **O31) Improve the economic and technical viability of waste management alternatives.**

Waste diversion programs have to be cost effective and technically viable if they are to play a continuing major role in waste management. Programs such as recycling and composting are only viable if markets exist for the products. In turn, these markets require a high quality product, free of contamination. To this end, it will be necessary to:

- establish organic waste as an important resource;
- encourage separation of waste at the source (all sectors) to improve the quality of the end product, and to place more responsibility into the hands of the waste generator;
- improve the marketability of recycled products by promoting environmentally sound products and recyclable waste;
- encourage the continuation and/or development of businesses that incorporate a reuse/recycling theme, such as Hobo Hardware, sales outlets that take old appliances in for repair, and retail outlets that promote refillable containers; and,
- encourage industry to use more secondary recycled materials in the manufacturing of new products, to help improve the marketability of recycled materials and "close the loop" on recycling.



**O32) Improve the accessibility of 3Rs programs to all sectors of the community.**

When many people think of waste diversion programs, they immediately focus on the residential household blue box program. However, there are other sectors of the community that need to be involved, and other materials that can be diverted. Some of the specific objectives identified through the CIP include:

- support hazardous waste management programs for small business;
- extend recycling opportunities to all multi-residential units; and
- promote and encourage a variety of composting opportunities, including backyard composting, multi-residential composting, and community composting facilities, as well as commercial and industrial composting programs.



**O33) Continue to work with the industrial, commercial and institutional sector to reduce waste.**

Approximately 60% of the waste disposed of at the Eastview Landfill Site in 1993 was generated by the industrial, commercial and institutional (IC&I) sector. The City does not have the same degree of influence over the IC&I sector as it does over the residential sector, and this presents an additional challenge when trying to reduce IC&I wastes. The Green Plan recognizes the need to work cooperatively with the IC&I sector in addressing the waste problem, and includes these specific objectives:

- encourage the IC&I sector to address packaging waste by:
  - reducing the amount of packaging used for their products
  - increasing the reuse and recycle capabilities of packaging they use or produce
  - developing and manufacturing reusable packaging and promoting the use of it by businesses in house
  - reducing the impacts of any packaging that does become waste;
- encourage the IC&I sector to develop recycling programs through incentives and cooperation/communication between business, employees and government;
- promote the economic and environmental benefits of conducting a waste audit and implementing a waste reduction work plan; and,
- encourage industry to come up with their own solutions (ie. market driven response to recycling).

**O34) Strive to achieve the best management and disposal of household hazardous waste.**

While household hazardous waste (HHW) represents only a small fraction by weight of the total municipal waste stream, it has the potential to cause significant harm to the natural environment. One of the key factors relating to the best management of HHW was already discussed in the education section, and that is to make sure that the community is well aware of what products are considered to be HHW, safer alternatives and proper methods of disposal. A HHW depot currently operates at the Eastview Landfill Site.

The careless and indiscriminate storage and disposal of HHW is due in part to the fact that residents do not have convenient access to proper collection and disposal infrastructure. This leads to concerns about inventories of chemicals being stored in residences, disposal of hazardous wastes through the sanitary sewer system, or roadside dumping. Therefore, another key factor to successful management of HHW is the development of a collection system that is safe, cost effective, yet convenient to use by the majority of the Guelph community. The wet-dry program may be able to support the development of such a system.

**O35) Minimize the environmental degradation resulting from the practice of landfilling through siting, design, construction, operation, and closure controls.**

While one of the goals of the Green Plan is to reduce or eliminate the need for landfill through aggressive waste diversion, it is recognized that at this point in time, landfills are still necessary to handle the residual waste stream.

Based on the comments received through the CIP, the objectives for landfilling were expanded as follows:

- Minimize the amount of waste to be landfilled.
- Locate new landfills in a manner that minimizes environmental degradation to the fullest possible extent. This includes, but is not limited to, the protection of groundwater, wetlands, surface water and aquatic ecosystems, terrestrial ecosystems, prime agricultural land, and the social and economic health and well being of the human community.
- If possible within the siting constraints listed above, locate future sites within the City limits.
- Minimize the cost of siting and operating a landfill, while recognizing that environmental considerations are of the highest priority.
- Fully engineer future landfill sites to further ensure environmental protection.
- Consider alternative or innovative technologies and mitigation strategies, such as leachate recycling, above ground storage and landfill mining.
- Control the type of waste entering the landfill to minimize leachate concentrations and gas generation, and to ensure that recyclable or reusable goods are not being disposed.
- Establish monitoring programs for old, existing and future landfills, recognizing the potential need for remedial action.
- Involve the public in all aspects of landfill decision making, including siting, design, operation, monitoring, closure and compensation programs.



**O36) Determine the true costs of each component of the waste management system, and assign those costs to the users of the system in a fair and equitable manner.**

In order for any waste management system to be successful over the long term, it must be economically sustainable. This means that all costs associated with the waste management system must be clearly identified and recovered from the users of the system.

The current landfill tipping fee covers all costs associated with the management of waste, including disposal costs, environmental monitoring costs and closure costs at the existing landfill, as well as all costs associated with the planning, siting, approval and development of a new site(s). Tipping fees are paid directly, on a tonnage basis, by all IC&I users.

The cost of residential waste collection is included in the municipal tax bill, and is therefore based on property assessment. The residential tax bills also included an amount to cover the tipping fees for all residential waste that is landfilled, so the residential taxpayers share this portion of the waste management costs. However, unlike the tipping fees that provide incentives for the IC&I sector to reduce waste, the waste management costs for the residential taxpayers are buried in the property tax bill, and are therefore invisible to the resident.

There were several suggestions made by the residents and businesses of Guelph directed towards making the waste management system in the City more fair, economical and sustainable, while promoting the 3Rs.

- The actual costs of waste disposal incurred by each resident of Guelph should be directly related to the amount of waste put at the curb for disposal. The residents would financially benefit from participating in the various waste reduction initiatives available to them, such as backyard composting, recycling or buying goods with less packaging.
- Costs passed on to the user should be separated into components such as waste collection, recycling and disposal. This could provide the user with immediate financial incentives to change their waste management habits.
- The recycling infrastructure should be made to be financially self-supporting. Each type of material collected in a recycling program has a value that fluctuates based on quality, supply, demand and other factors. In general, the actual cost of recycling passed on the user should equal the collection and processing costs, less the market value of the materials collected. The wet/dry program could charge less to handle environmentally benign material than for material that is difficult to recycle because of poor markets or high preprocessing requirements.
- The landfill tipping fee structure is based on the true costs of operating the system. All costs associated with planning, siting, obtaining approvals, constructing, operating, closing and monitoring the landfill should continue to be included in this fee.
- The economic climate should be favourable for recycling industries to operate in the city. The economic stability of recycling industries in Canada is often shaky due to factors such as inefficient operations (need for R&D support), supply and demand fluctuations for material sales, distance to markets, etc.
- Industry should be encouraged to use more secondary recycled materials in the manufacturing of new products. This will help create a demand for, and increase the value of, recycled materials. Ultimately, this will make the collection and processing of recycled materials more economical.



## Community Suggestions for Further Consideration

### *Please note:*

*The following suggested activities or changes in process have been identified by members of the community and the writing committee as possible methods of achieving the Goals and Objectives. The suggestions require further study to:*

- *identify inconsistencies with the Goals and Objectives, and determine general feasibility (i.e., can the suggestion realistically be implemented, and will it have the desired impact?);*
- *identify overlap or conflict with existing programs or regulations (i.e., is it already being done? or are existing regulations in place?);*
- *determine economic soundness through a cost benefit analysis (i.e. what is it going to cost, who is going to have to pay, and who or what will benefit?); and,*
- *determine priorities for implementation.*

*It is anticipated that the proposed Green Strategy Steering Committee, as proposed in Chapter 3, will have a critical role in evaluating these suggestions and in ensuring that detailed action plans are formulated. Through this evaluation process, it will be determined that some suggestions can be quickly accepted by all stakeholders, while other will require modification, and some may prove to be unrealistic.*

### **3Rs - Residential Sector**

#### **S75) Consider re-examining the benefits of a multi-stream waste collection system.**

Current plans for wet/dry recycling within the City call for source separation into two streams; wet and dry. However, the separation of the dry stream into three or more substreams - recyclables, nonrecyclables, and household hazardous waste (HHW) - should be further reviewed. By encouraging further source separation, this system would put more responsibility into the hands of the waste generator. The nonrecyclable stream could still be separated at the processing facility to remove recyclables and HHW which escape into this stream.

#### **S76) Consider providing facilities for recycling (including composting) in apartments, townhouses and other residential areas not currently serviced.**

A number of residential areas in Guelph do not have convenient access to recycling programs. Tenants of these residences should encourage landlords and property owners to implement waste reduction programs and/or allow collection of recyclable goods.

#### **S77) Assess the potential for expanding the items acceptable for recycling at depots and in the blue box.**

Items such as corrugated cardboard and fine paper should be added to blue box recycling programs to increase the amount of waste diversion that occurs through source separation.

#### **S78) Consider placing recycling bins beside public trash cans.**

Recycling bins should be placed beside public trash cans to capture recyclables which are currently escaping into the waste stream and to make recycling more convenient. The same system should be used when wet/dry recycling comes on-line.

#### **S79) Consider establishing another recycling drop-off depot.**

An additional recycling drop-off depot should be established at an easily accessible and convenient location within the city, to improve the convenience of access for the user.

**S80) Stores and businesses should investigate methods of making it easier for the consumer to reduce waste.**

Stores and businesses that serve the residential sector should be encouraged to initiate programs that make it easier for the consumer to reduce waste. Possible examples include:

- a minor surcharge for the use of disposable shopping bags;
- bulk food sections where shoppers are permitted to bring their own containers (the same program could be initiated for items such as soaps and detergents).

**S81) Assess the potential for establishing a permanent waste exchange/salvage facility for used goods and materials.**

A permanent waste exchange facility should be established within the City. Residents can take their unwanted reusable materials to this facility instead of the landfill, and other residents can access the material. This facility should be operated at a minimal cost to the users, and should also accept materials from the IC&I sector. It is not unrealistic to have more than one of these sites.

**S82) Consider expanding the current goods exchange days.**

The goods exchange days are an excellent method of waste reuse and should continue. However, they should be run more frequently and be publicized at a greater level. Goods not claimed should be hauled to a waste exchange facility.



**3Rs - IC&I Sector**

**S83) The City of Guelph should evaluate the potential to assist and encourage industry in performing waste and packaging audits, and in preparing waste reduction and packaging reduction workplans.**

The Waste Management master Plan endorses and supports the objectives of the National Packaging Protocol. Manufacturers should be encouraged to reduce overpackaging through economic incentives and educational support. Manufacturers should be informed about the reasons for not purchasing overpackaged products, and they should be encouraged to develop and/or use reusable packaging.

Under the new provincial 3Rs regulations designated industries must perform a waste audit that addresses the amount, nature and composition of their waste, and that also assesses any management decisions and policies that relate to the production of waste. They must then develop a detailed waste reduction workplan that includes reasonable ways to reduce, reuse and recycle waste. The workplan must also outline responsibilities for implementation, timing and expected results.

The new regulations also requires major packaging users to conduct packaging audits to examine the impacts of packaging on waste management needs, including the fate of the packaging following its normal distribution pattern. The industry must then prepare a packaging reduction workplan that outlines reasonable actions that will: reduce the amount of packaging used; increase the recycled content of the packaging; increase the reusability and recyclability of packaging that is used; and, reduce the environmental impact of packaging that does become waste.



The City should offer support to the IC&I sector to assist them in implementing the audits and workplans required under the new 3Rs regulations. The City could have a hotline to provide resource and contact information. The City and the Chamber of Commerce could help support the development of IC&I markets and networks for potentially recyclable materials. They could also provide assistance for market research and development programs that focus on waste reduction, reuse and recycling.

**S84) Investigate methods of expanding promotional/publicity programs to increase the awareness of 3Rs opportunities in the IC&I sectors.**

It is important to make the Industrial, Commercial and Institutional (IC&I) sector aware of 3Rs opportunities. Increased accessibility to available programs will help promote responsible and educated decisions. Suggestions for expanded promotional programs are provided below.

- The Guelph Chamber of Commerce and the City of Guelph should be encouraged to continue the production and coordination of an IC&I newsletter, perhaps in cooperation with waste management associations and industries. The newsletter should educate industry on 3Rs opportunities, resources available, new technologies and current legislation.
- Individual companies could promote positive environmental actions to their customers, employees, competitors and the general public. This could be done by providing a leading example, or through company newsletters and business associations. All communications should be designed to educate and advocate responsible environmental practices.

- The City of Guelph/Chamber of Commerce should be encouraged to continue to host breakfast meetings for the IC&I sector, where representatives from industry, government and waste management associations can discuss current 3Rs opportunities. For example MOEE officials could discuss the 3Rs regulations recently passed under the Environmental Protection Act. These regulations require industries to conduct waste audits and develop waste reduction action plans.
- Area municipal governments (Guelph, Waterloo & Cambridge) should consider coordinating a Business Waste Reduction Seminar. Private associations, industry leaders in waste management and government organizations could be invited to conduct seminars or workshops on 3Rs opportunities, and on the availability of industrial materials, equipment and government programs.
- Awards of merit should be developed for innovation in waste reduction technology, research and development, and overall waste reduction efforts by industry.

**S85) As markets become available for materials to be recycled, such as boxboard, scrap metal and plastics, the City should consider banning these materials from landfill.**

**S86) Investigate methods of encouraging the IC&I sector to implement purchasing policies that are based on the 3Rs hierarchy of reduce, reuse and recycle.**

Markets can only be supported through purchasing policies that take into account the recycled content, recyclability, reuse and reduction potential of product. Directories and information listing environmentally responsible products should be made available to the IC&I sectors. Informal networks of environmentally responsible purchasing agents are already established within the City. The Chamber of Commerce and Guelph 2000 have some information on environmentally responsible office supplies and equipment. These programs should be expanded.

**S87) The City should consider endorsing provincial government programs and policies on purchasing practices that are in the interest of recycling, and should consider adopting a purchasing standard that specifies the minimum recycled content for goods and services purchased by the City.**



**S88) The City, in cooperation with local industry, should consider establishing a waste exchange network for the exchange of used goods and materials from the IC&I sector.**

The waste exchange network should actively search for users and donors of reusable IC&I waste. This should be combined with the current system which is passive in nature. Residents should be able to access the system for wanted material. This should be linked with the current Ontario and Canadian Waste Exchange networks.

The Association of Municipal Recycling Coordinators is currently working on a joint waste diversion and recycling directory for major municipalities. The City should make this directory available to the local IC&I sector.

### *Residential Composting*

**S89) The City should investigate the possibility of providing every household in Guelph with the opportunity to compost.**

- A backyard composter should be provided to all householders (where appropriate, and assuming that the resulting diversion will offset the capital cost).
- Compost facilities should also be provided in townhouses and apartments. As many groups as possible should be provided technical support from the City of Guelph when they decide to start a multi-residential composter.

Local depots should be established for wood chipping, since brush is difficult for residents to shred or chip on their own. The City could provide a collection/drop-off system for brush. The City could also provide and maintain a windrow composter and public drop-off bins at the landfill for composting. In addition, the City could establish a compost demonstration site(s).



- S90) As residents begin to compost successfully, the City should consider expanding landfill bans include grass clippings, leaves and other yard wastes.**

Yard waste bans were introduced in January 1994. The City should encourage compliance with these requirements.

- S91) More information and promotion on composting should be provided.**

By increasing community knowledge about composting, public concerns such as the reluctance to use compost from community composting centres for fear of potential contamination could be reduced. Suggestions from the community are provided below:

- Composting seminars should be provided on an ongoing basis to provide interested citizens with useful information and hands on experience.
- Organizations such as Guelph 2000 could be used as an educational source to distribute composting information.
- A volunteer program could be established by local citizens interested in promoting the benefits of composting.
- City technicians should be available to answer questions and address public concerns related to composting.
- Vermicomposting should be promoted and encouraged in the residential and IC&I sectors. The most up-to-date information on vermicomposting should be available to the public.

### *IC&I Composting*

- S92) Incentives should be developed for the commercial and industrial sectors to encourage source separation and composting.**

Some suggestions from the community include:

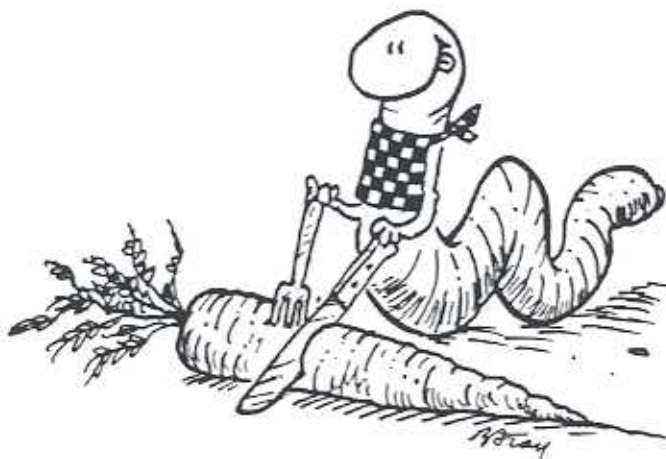
- reduce tipping fees for businesses that sort waste into wet/dry streams;
- subsidize businesses that practice composting; alternatively, businesses that don't compost could be taxed.

- S93) Opportunities for student residences and food services at the University of Guelph to compost should be evaluated.**

A composting plan should be developed for the University. The University and the City should develop and information exchange program, to share information on issues related to the diversion of organic waste from the landfill.

- S94) The City should consider developing a "perishable foods directory".**

Food manufacturers, supermarkets and restaurants would be encouraged to send perishable foods to organizations in the directory.





## *Incineration*

- S95) Provincial initiatives and research and development towards the safety and feasibility of incineration technology for pathological waste should be encouraged.**

The community was clearly divided on the issue of incineration. Proponents see it as a safe and viable alternative to limited landfill capacity, and as an economical means to produce energy from waste. Opponents believe that there is a lack of proven research and technology, and that incineration lacks credibility in terms of environmental safety and economic feasibility. Opponents also feel that the risk of air pollution is too great, and that incineration is counterproductive to waste reduction because the most combustible materials are also often recyclable.

Where incineration of pathological waste is necessary, decision makers should strive towards the most advanced "state-of-the-art" technology. The City of Guelph, interested citizens and non-government organizations such as OPIRG should coordinate their efforts to keep abreast of current research on incineration.



## *Household Hazardous Waste*

- S96) The City should consider expanding its paint exchange program.**

The City, in cooperation with the Guelph Chamber of Commerce, should consider expanding its reuse waste exchange program. Potentially hazardous products, such as paints and varnishes, could be diverted from disposal and reused.

- S97) The City should investigate methods of providing convenient disposal of HHW.**

The City should make proper household hazardous waste disposal more convenient to residents by establishing regularly scheduled collection either by curbside pickup, depots, phone-in or some other method. Given the inherent danger and hazards to the environment and public health, the costs associated with the collection and disposal should be a component of the entire waste management system, as opposed to being charged separately to the user.

- S98) The City should consider increasing its information services related to HHW.**

Specific suggestions from the community include:

- provide a list of safe alternatives to HHW products and lawn and garden supplies
- provide information on the adverse effects that result from improper disposal of HHW through the sanitary sewers
- provide advice to residents on the safe storage, handling and disposal of HHW.

## *Landfill*

### **S99) Old landfills should continue to be monitored.**

All known abandoned landfills and dumps in the City have been identified and investigated for environmental problems, such as leachate discharges and methane gas emissions. Where problems have been identified, appropriate monitoring programs are ongoing. One of the suggestions from the community is that a multi-sectoral committee, with representatives from the business community, City staff, Guelph residents and outside advisors, be established to oversee the monitoring process.

### **S100) The Landfill Search Committee should continue in its search for new landfill space within the City, as well as its investigation and assessment of various alternatives to landfill and landfill technologies.**

### **S101) Public meetings and input sessions regarding the end use of the Eastview landfill site should begin in 1994 and continue on a regular basis.**

Input from residents living near the site should be actively solicited.

### **S102) Once the wet/dry recycling facility is in operation, consideration should be given to developing a program that would ensure that recyclable and hazardous wastes are not being transported from the sorting facility to the landfill.**

If an end market has not been found for these materials they should be stored until every effort has been made to find one.

## *Economic Sustainability*

### **S103) The City should consider implementing a "user pay" system for waste management.**

Aspects of a user pay system suggested by the community are provided below.

- Limit the amount of "free garbage" and charge a fee for amounts disposed over a specified limit.
- Charge residents a special fee to dispose of large objects such as appliances.
- Base the fee for waste disposal on the weight or volume of material put at the curb. A study should be undertaken to determine the best method of residential user pay collection (ie. by weight, by volume, per bag, etc.).
- Charge residents a fee for both waste disposal and material recycling, based on the amount of each material put at the curb. Each of these charges should be indicated as a separate cost. In an effort to discourage waste disposal and encourage recycling, the cost to the resident for recycling should be set at a lower rate than for disposal. Although some recent studies suggest that recycling costs may be higher than waste disposal, this may be due to the fact that the full costs associated with waste disposal are not currently included in the costs borne by the taxpayer.
- Require residents to pay for waste management services on a separate bill (similar to the water bill), rather than incorporating it into the municipal tax bill.
- The landfill tipping fees should continue to be based on all the costs associated with the operation of a landfill, from siting and design through to closure and rehabilitation.
- Residential user fees should continue to be based on all waste management costs, including an amount that would be needed to close and rehabilitate a landfill site. The fees should reflect the real cost tipping fee structure that is being charged to landfill users such as private waste haulers and industries.



**S104) The City should assess their potential role in the support and development of recycling industries and markets.**

Suggestions from the community are provided below:

- The City should consider using a combination of economic incentives and tax breaks, together with any provincial funding available, to establish recycling industries on sound economic footing in the City. These incentives could also be used to fund research and development opportunities for more efficient, state of the art equipment.
- The City, in cooperation with the Chamber of Commerce, should develop and implement a preferred purchasing policy for goods manufactured using recovered post consumer recycled materials.
- The City should consider lobbying the provincial and federal government to remove subsidies given to industries that manufacture goods made from virgin materials, in order to make the manufacture of goods made from recycled materials more competitive in the marketplace.

***Public Participation in Decision Making***

**S105) Assess methods of expanding and formalizing the public consultation process.**

Participants in the community involvement program identified a need to improve the recruitment, timing and application of public input to the decision making process. Ad hoc methods should be replaced by formal arrangements to incorporate public representation from the onset of individual projects. Suggestions from the community are provided below:

- Joint neighbourhood and city meetings should be held to provide the community with information about the opportunities and processes available for public input.
- These meetings should be held early in the planning process, so that all community issues can be identified at the outset of the process.
- The number of opportunities for public input should be increased to encourage a wider range of responses and input.
- The community should be involved in developing criteria for decision making processes, such as the criteria used to site a landfill.

## ***Public Education and Promotion***

### **S106) Consider creating an extensive public awareness program to promote life-style changes and waste diversion practices.**

The community has suggested that the following factors need to be emphasized:

- Education efforts should provide the community with a basic understanding of how environmental interactions occur, so they can understand the problems and the solutions.
- Educational efforts should try to effect behavioral changes, and should promote living with less.
- Reduction and reuse should be promoted as being preferable to recycling.
- The concept of the "life cycle" should be introduced to provide the consumer with knowledge that will help them make wiser purchasing choices.
- Learn from other groups outside the boundaries of the City, including native groups, other municipalities, and other countries.

### **S107) Investigate methods of improving the delivery and distribution of information to the public.**

The delivery of information should be a shared responsibility between stakeholders such as the City, industry, business, institutions, neighbourhood groups, service clubs and other clubs or groups.

Existing promotion and education strategies should be reevaluated, and methods which have been found to have a greater impact or that lead to improved public involvement should be implemented, even if the cost is increased. Some suggestions for further study from the public include:

- Circulate new information by placing it in the blue box instead of newspaper ads or mailboxes.
- Send information with the City's business tax bills.

- Focus on the education of students. They have a great influence on their parents, and they will become the adults and decision makers of the future.
- Increase face-to-face education.
- Make use of community groups such as the service clubs, Guelph 2000, Guelph Chamber of Commerce, Boards of Education, volunteers, youth groups, churches, the family unit, etc.
- Provide a continuing education series on environmental issues and bring in speakers on various topics such as composting.
- Consider using TV to reach a large segment of the population.
- Update the list of acceptable items for paper recycling at the depot.
- Solicit financial support for delivering programs to the public from the IC&I sector.
- Businesses should be encouraged to educate their employees on the values of waste management, and how they can participate in existing programs. Particular emphasis should be placed on making sure that IC&I management staff understand the benefits of 3Rs programs for their company and the environment.

### **S108) Develop incentives for people to do more.**

Suggestions from the community include:

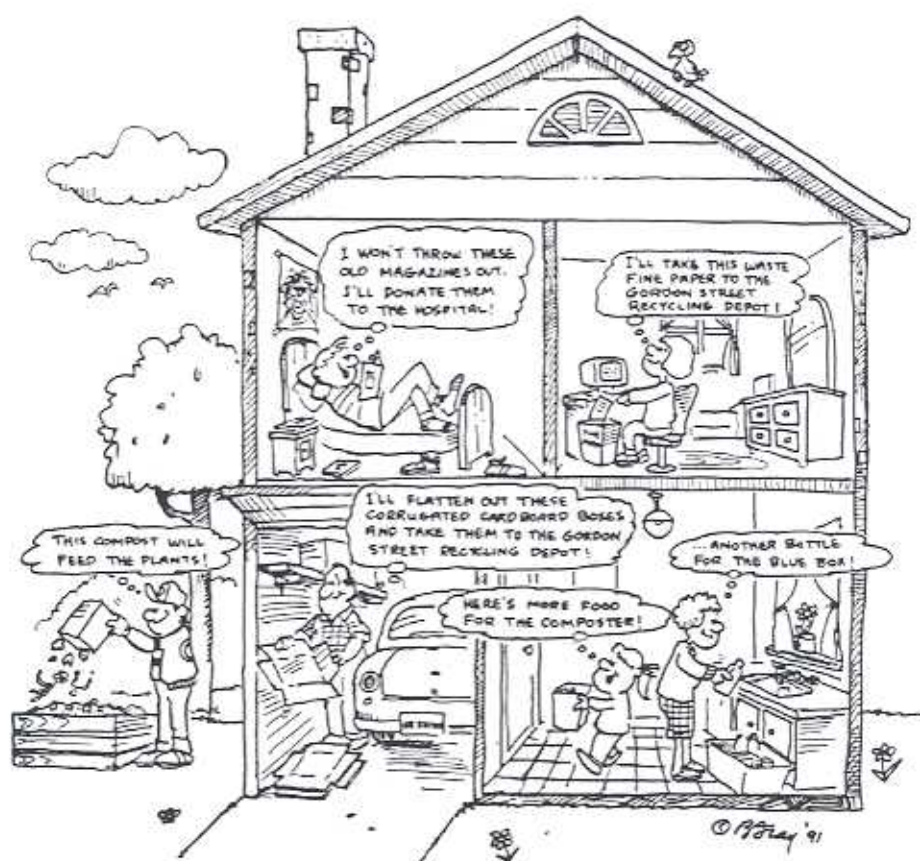
- Encourage industry to recycle by publishing IC&I success stories, and providing awards for green industries.
- Make 3Rs measures simple, so they are easier to adopt.
- Make people accountable for the waste they generate.
- Educate people about the potential savings from reuse.



**S109) Consider providing the public with more examples and ideas of waste reduction and reuse strategies, and information on recycling.**

The community indicated that they would welcome additional suggestions on how they can do more. For example:

- Provide information on alternatives to hazardous products, and on the proper disposal of household hazardous waste.
- Encourage people to reuse products, or buy products that are recyclable.
- Encourage composting.





## Chapter 3

# The Implementation Process

### Introduction

The previous sections document how five writing committees developed specific Challenges, Goals and Objectives for each of five environmental issue areas, along with Community Suggestions for reaching those Goals and Objectives. A sixth writing committee, called the Relationship Committee, was responsible for examining these Challenges, Goals and Objectives from a broader perspective, looking for interconnections and implementation implications.

### The Need for a Directed Green Strategy

The development of the Green Plan is only the first step towards achieving environmental sustainability. All of the stakeholders in the Green Plan need to continue to work together to ensure progress towards meeting the Challenges raised in the Green Plan- otherwise the fears of those who worry "that the Green Plan will just sit on a shelf and gather dust" will be realized.

Some of the concepts and suggestions made in the Green Plan will be relatively easy to put in place, because they require little adjustment from the status quo, will not cost much to implement and already have the broad support of the community. Other elements will require significant change, both in the community mind-set and in business and society values. A wide range of actions suggested in the Green Plan fall between these two extremes.

Society is currently struggling free of a recession, and provincial and federal deficits limit freedom of action. It is important to set priorities, but these should reflect more than the traditional cost/benefit analysis. Making easy and continuous progress is a key target. Once the community has absorbed some of the easier changes, more people will be ready for the more significant changes that will be required for the Green Plan to take full effect.

Gradual and practical progress is preferred over abrupt change. The Green Plan has identified some high standards that will need to be implemented over the long term. There is merit in noting more modest targets for the short and medium terms, with a time line to get to the long term. Using a phase-in approach allows business, industry, municipal government and the community time to adjust. Incentives are also a powerful way to encourage both the business person and the householder to work towards environmental sustainability.

#### In this Chapter.....

|  | Page |
|--|------|
| Introduction .....                           | 77   |
| The Need for a Directed Green Strategy ..... | 77   |
| Implementation Strategy .....                | 78   |
| GSSC's Responsibilities .....                | 79   |
| Some Guidance for GSSC .....                 | 82   |
| How GSSC differs from EAC .....              | 82   |

Priorities for action should not only reflect cost/benefit, but should also take into account the absolute impact on the environment and the resources required to undertake an activity. Easy wins should be first! Activities should not be considered to be separate undertakings - the sum effect of all activities on the health of the community is what is critical. How activities integrate and how they work together should be factored in the prioritization.

Public support for all activities is essential, but especially so for those that require the most change. The implementation strategy must address the issue of public education ahead of changes. This is where the full cost of a particular activity (or the cost of inactivity) can be properly exposed, so that taxpayers can gain ownership of the approach or have a forum to raise a challenge.

There is a wide range of agencies with existing stewardship programs. The implementation strategy needs to identify those that are relevant to the Green Plan's recommendations, and must seek cooperation among these agencies to prevent duplication.

There are many City initiatives and plans already in place or accepted. These need to be integrated with the Green Plan to ensure cohesive progress. The relationships between current and future initiatives must be explored, to ensure that they are not in conflict.

If there is no active implementation process, there will be no road map for City staff and citizens to follow, and the creation of the Green Plan will have been a waste of time and effort. An active **Green Strategy** will ensure that progress is manageable, and will allow a transition to a greener, more sustainable Guelph, without creating a significant cost burden to business, City government or the community - in effect a **directed green evolution**.

## Implementation Strategy

A **Green Strategy Steering Committee** (GSSC) will oversee the implementation of the Green Plan. GSSC will be appointed by City Council, and will be composed of equal numbers of:

- citizens at large;
- representatives of environmental interest groups;
- representatives of the industrial, commercial and institutional (IC&I) sector; and,
- City officials (elected and staff).

Suggested membership and operating principles for GSSC are provided in Appendix D.

The purpose of GSSC is to ensure that there is an orderly, managed and coordinated approach to integrating the Goals and Objectives of the Green Plan into all municipal and community activities, so that as a community, we can work towards meeting the Challenges identified in each environmental issue section, and ultimately move towards environmental sustainability. GSSC will report directly to City Council and the public.

GSSC will be responsible for examining the Goals, Objectives and Community Suggestions for Further Consideration in each of the environmental issue areas. GSSC will prioritize and assess the feasibility of these suggestions, along with any new ideas. GSSC will ensure that detailed action plans are developed and carried out.

GSSC will establish lines of communication between the community and the appropriate administrative bodies. An important task for GSSC will be to work with organizations in the community, including the many people that have been active in the Green Plan's development, to encourage their continued involvement in Green Plan efforts, and to obtain opinions on priorities for achieving environmental sustainability.



## GSSC's Responsibilities

There are four interrelated types of activities that are critical to Guelph's Green Strategy, and GSSC has a role to play in ensuring the success of each of these activities. These roles are shown schematically in Figure 2, and are discussed below. The need for administrative support and resources is implicit in GSSC's roles and responsibilities.

### Reporting

- 1) **GSSC should report to Council on a regular basis, to inform Council of progress and plans for achieving the goals and objectives of the Green Plan. This reporting would have three parts:**
  - an annual accomplishment report;
  - an annual work plan; and,
  - a state of sustainability report, every three years

GSSC will use methods that ensure that these reports are community-based, with multi-sectoral involvement.

**Annual Accomplishment Report:** In the first year, this report would be brief, reporting on the status of Green Plan activities. Normally, this report might be in the Spring, to provide an overview of what Goals and Objectives have been addressed, and the nature of the accomplishments.

**Annual Work Plan:** The annual work plan should document planned activities for the coming year, including lines of responsibility and accountability and the expected budget implications.

**State of Sustainability Report:** There should be a comprehensive examination of the general state of the natural systems and environmental features within Guelph every three years. Many municipalities now do "State of the Environment Reports"; however, it is recommended that Guelph broaden this technique by integrating the examination of the state of the natural environment together with an analysis of its relationship to the economic and social sustainability of Guelph as a whole.

Quantitative indicators should be used to provide objective measurements that can be compared to base-line data, to chart improvements or deterioration of natural systems. Qualitative indicators and personal perceptions should also be used to determine how conditions have been enhanced or degraded.

GSSC should ensure that State of Sustainability reports are prepared with the involvement of the community.

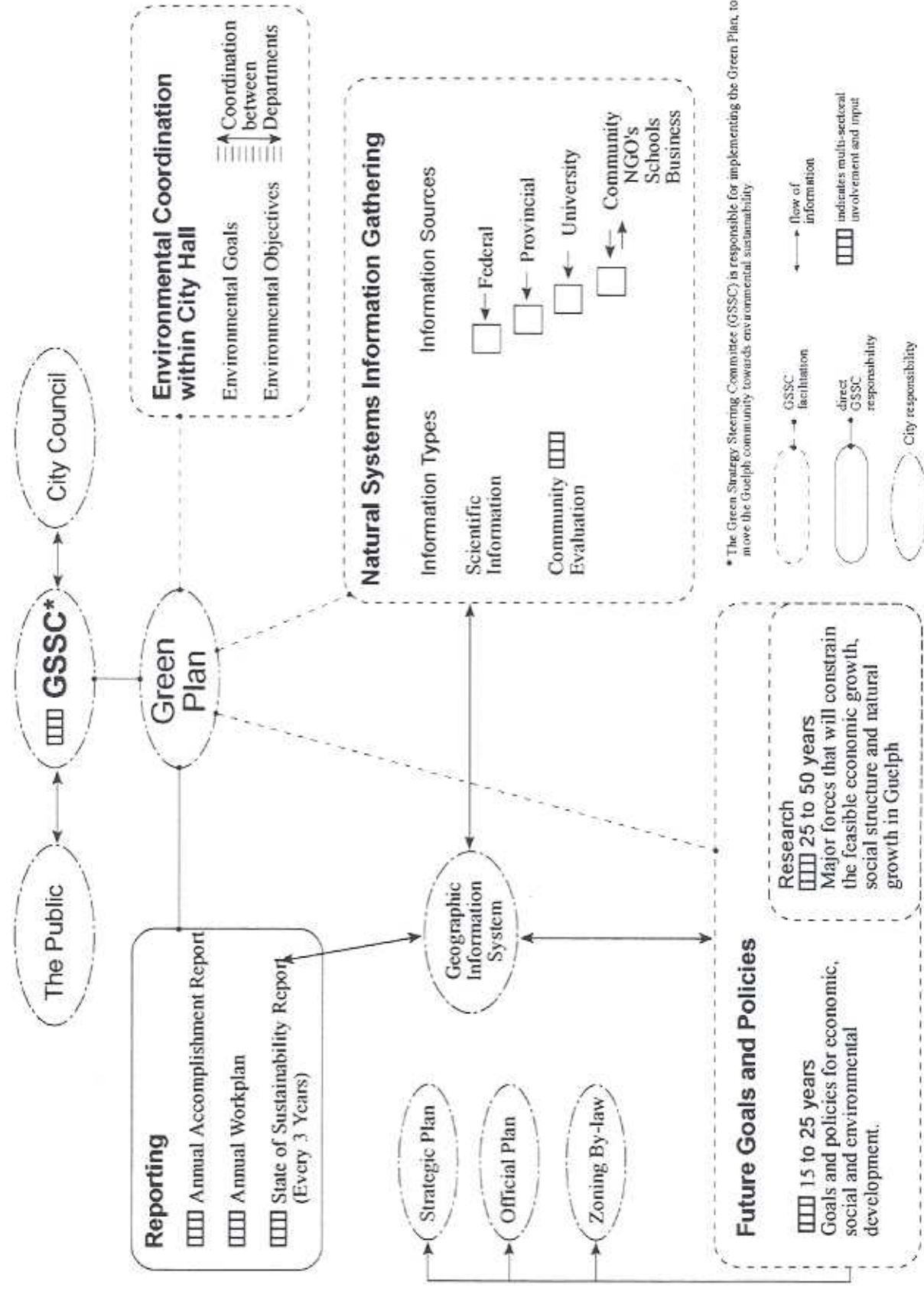
### Environmental Coordination within City Hall

- 2) **GSSC should facilitate the development of clearly defined environmental goals and objectives for all City departments.**

Most City department already have some internalized method or mandate for dealing with environmental issues, along with individuals on staff with considerable environmental responsibility or interest. GSSC should facilitate the coordination and solidification of existing departmental environmental mandates, and encourage each department to define goals and objectives related to the Green Plan.

Staff responsibilities need to be coordinated, to improve interdepartmental liaison and to ensure that the kinds of responsibility and expertise are complementary to each other. This will help identify and provide staff support for environmental initiatives, such as GSSC.

**Figure 2**  
**Green Strategy Steering Committee (GSSC)**  
**Roles and Responsibilities**





### *Natural Systems Information Gathering*

- 3) **GSSC should encourage and facilitate the establishment of a community-based system to assemble information on the natural systems that exist in and around Guelph.**

Local environmental groups should be encouraged and aided to assemble and compile information from their members and from the community about natural systems in Guelph and surrounding areas, on an ecosystem basis. The information needs of decision-makers and the community are of two kinds:

- scientific, biological and ecological data
- evaluation by citizens of the natural features that they consider most important - this would include surveys of preferences and priorities concerning all living systems, such as trees, scenic views, open spaces, walkways, wildlife and wildlife habitats.

The information would be used by many parties in a wide variety of studies and planning decisions. It would also provide data on the state of the health of natural systems.

GSSC should coordinate the gathering and storage of this information. Information should be adapted for storage and retrieval in the City's Geographic Information System, for accessibility. GSSC should develop mechanisms that will make the GIS information available for the use of community groups, to increase education and awareness of the natural systems in which the community lives and works. This would enable two-way information flow.

### *Future Goals and Policies*

- 4) **GSSC should facilitate the multi-sectoral community gathering of information and advice needed to formulate feasible municipal goals and policies for Guelph's development over the next fifteen to twenty-five years. GSSC should also arrange for research on the major structural factors that will constrain the very long term future choices open to Guelph as a community, looking twenty-five to fifty years ahead.**

GSSC has a role to play in identifying and periodically revising feasible municipal goals and policies for the economic, social and environmental development of Guelph over the foreseeable future (i.e. the next fifteen to twenty-five years). These goals and policies are of a broader perspective than the scope of the Official Plan, which is limited by the mandates provided by the Planning Act.

The ability to foresee conditions beyond twenty-five years is limited to major forces which will constrain the feasible ranges of economic growth, social structure and natural growth. For example, what are the alternatives available to Guelph if forty years of additional growth brings us to the limit of our groundwater supply, or if our total water supply is contaminated? Will fifty years of growth bring us to the limit of developable land and up against significant wetlands and aggregate resources? GSSC should facilitate or sponsor activities to obtain the needed long-range analysis to answer these types of questions. This analysis could include academic research, using the University's skills and resources.



## Some Guidance for GSSC

During the development of the Implementation Strategy, many useful ideas and thoughts arose that might assist GSSC during its initial start-up phase. This following information has been included in Part II of this document, in Chapter 6, called "Thoughts for GSSC Review":

- Implementation at the Local Community Level
- Provincial and Federal Implementation Implications
- Substantive versus Process Matters
- A Practical Guide for Decision Makers
- The Costs of Implementation

## How GSSC Differs from EAC

In parallel with the development of this Green Plan, the City has been considering the establishment of an Environmental Advisory Committee (EAC), and has been determining what form it should take. The Green Plan is supportive of the proposal that there be a committee of volunteers from the community, appointed by Council for their expertise on environmental and planning matters, to provide advice on matters that fall under the Planning Act. This would include providing comment on land use development applications that might have environmental impacts, as well as any proposed Official Plan policies that might affect the environment.

While EAC is expected to be complementary to GSSC, they are two very different bodies. EAC is seen to have a much narrower, technically-oriented task, dealing primarily with land use issues, and its membership will reflect this task. GSSC has a broader scope, tackling a wide range of issues (land use, water, energy, transportation and waste), and relying on all sectors of the community (City Hall, business and industry, residents, community groups, etc.).