ENVIRONMENTAL POLICY REVIEW

OF

15 CANADIAN MUNICIPALITIES

Volume 2
Appendices

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APPENDIX 1

ENVIRONMENTAL PROGRAMS AND POLICIES PRESENTED BY MUNICIPALITY

1 CITY OF VANCOUVER

1.1 General Picture

The British Columbia Municipal Act establishes a framework for governments of all municipalities except for the City of Vancouver, which has a separate right to exist under the Vancouver City Charter. The Municipal Act also sets up regional governments, such as the Greater Vancouver Regional District, which derive their authority from the component municipalities.

The population of the Greater Vancouver Regional District is 1,542,744. The population of the City of Vancouver is 471,844 and the land area is 113.09 sq. km.[1] The City of Vancouver has no municipal plan, although the Planning Department is currently working on developing one. A series of Area Plans, like the South Lands Area Plan have been adopted. Vancouver has a Special Office of the Environment.

In 1989, Vancouver City Council created a Task Force on Atmospheric Change involving representatives from academia, industry and the community. The mandate of this task force was to study the complex issues surrounding atmospheric change, gather public input, and recommend specific actions that the City and its citizens could take. The report published by the Task Force was entitled *Clouds of Change: Vancouver and the Changing Atmosphere.* In October 1990, City Council approved 34 of the think tank's major recommendations. In January 1992, the Mayor advised Council of his intention to reconvene task force to review how these recommendations were being implemented. A status report on the implementation of *Clouds of Change*[2] helped determine which programs were or were not being implemented and why.

Another important initiative in Vancouver is documented in *Creating Our Future*, created collectively by residents of the Greater Vancouver Regional District. Between December 1989 and April 1990, more than 4,000 Greater Vancouver area residents committed to the health and welfare of the region participated in a series of seminars and community meetings called Choosing Our Future. Private citizens, representatives of community groups, and municipal and provincial politicians gathered together to grapple with a wide range of intersecting environmental and lifestyle issues. Their goal was to reach a consensus on an agenda that would spell out some future directions for the region. By September 1990, recommendations had been compiled in a 34-page report entitled *Creating Our Future- Steps to a More Livable Region.*[3] The priorities were listed as maintaining a healthy environment, conserving the land resource, serving a changing population, maintaining the region's economic health, and managing the region.

The policies and programs presented in the following tables were drawn from the *Clouds of Change* and from interviews done with City staff.

1.2 AIR QUALITY POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Ozone Depleting Chemicals (ODCs)	X			1-7, 12
CO_2 and Other Greenhouse Gases (e.g., Methane)	X			1, 2, 4, 7, 8, 9, 11, 12
NO_2	X			9, 11, 12
SO_2	X			10, 12
Use of Alternative Fuels	X			11, 12

OZONE DEPLETING CHEMICALS AND CO_2 REDUCTION

1. That Council set targets to reducing emissions of atmospheric pollutants in an international context, and to set a framework for local actions to reduce emissions of atmospheric pollutants; that the City of Vancouver take responsibility for the carbon dioxide emissions of its citizens and to that end commit itself to an initial reduction in 1988 level carbon dioxide emissions of 20 percent by the year 2005; that the city of Vancouver take responsibility for the chlorofluorocarbon (CFC) emissions of its citizens and to that end, commit itself to phase out all emissions of CFCs and other ozone-depleting chemicals (ODCs) by the year 1995;
2. urge the federal government to commit Canada to an initial reduction in carbon dioxide emissions of 20 percent by the year 2005; commit Canada to phasing out all emissions of CFCs and ODCs by 1995; and to pursue international agreements to reduce emissions of carbon dioxide and other greenhouse gases. This should be part of a program to address the problem of global atmospheric change and local and regional air pollution using all measures within the government's power;
3. subject to future reports on specific initiatives which will clarify the costs and trade-offs involved in achieving the objectives and targets, Council urge the federal government to use all measures within its power to implement the Recommendations in *Clouds of Change* requiring federal involvement;
4. urge the provincial government to enable the creation of an Air Quality Management Agency for the Lower Fraser Valley; commit the Province to an initial reduction in carbon dioxide emissions of 20 percent by the year of 2005; commit the Province to phasing out all emissions of CFCs and ODCs by 1995; and pursue national agreements to reduce emissions of carbon dioxide and other greenhouse gases;
5. ban the use, sale and manufacture of all CFCs and ODCs, and enhance the effective

control and recovery of CFCs now in use; and encourage the substitution of non-ozone depleting alternatives for products and processes currently in use; to eliminate CFCs by 1995;

6. direct the City Department of Permits and Licenses, Health Department and Law Department to review the GVRD's proposed CFC Control Task Force by-law and report to Council as soon as possible on an appropriate City by-law banning the use, sale and manufacture of ozone depleting chemicals and items which in their manufacturing process involve the use of ozone depleting chemicals; direct the City Law Department, as part of the study described in recommendation (a), to prepare and deliver a draft bylaw banning the use, sale and manufacture of ODCs;
7. to determine the City's powers to assist businesses with conversion from CFCs and ODCs to less harmful chemicals and products; direct the City Department of Permits and Licenses, City Law Department, and the Medical Health Officer to study and report to Council before the end of 1990 on specific regulatory measures, using the City's existing and any necessary new powers to regulate licensed business, to provide economic incentives for conversion of processes from those using ozone depleting chemicals.

CO_2 EMISSION REDUCTION

8. That Council direct the City Engineering Department to accelerate construction of the methane gas collection system for the Burns Bog Landfill. This recommendation will reduce present emissions levels of methane gas, a greenhouse gas which, if collected, can be sold for other uses;
9. achieve short-term reductions in emissions of atmospheric pollutants from motor vehicles.

SULPHUR DIOXIDE EMISSIONS REDUCTION

10. That Council request the Greater Vancouver Regional District to use its influence to immediately reduce the present levels of industrial sulphur dioxide emissions from regional cement works and petroleum processing refineries.

ALTERNATIVE TO FOSSIL FUEL USE

11. To shift away from fossil fuels by exploring alternatives for City vehicles; conserve energy in municipal operations fuels; and improve the fuel composition of the City's vehicle fleet. This has not yet been done.

OTHER

12. To ensure that all local area planning programs incorporate the objectives of reducing emissions of atmospheric pollutants and include measures addressing those objectives in their recommendations to Council.

EVALUATION

Success: The implementation of the Clouds of Change recommendations has been mixed.

Although some major initiatives remain unimplemented, the program has been reasonably successful, particularly in the area of increasing public awareness of the potential results of everyday activities on the state of the atmosphere. Consciousness-raising has not prompted the public to change attitudes toward single-occupancy vehicle use. In total 11 of the major recommendations have been carried out, or are essentially complete, insofar as staff have reported back to Council and Council has adopted recommendations. In some cases, further workshops have been scheduled. Major items in this category include: regulation of ozone-depleting chemicals, methane gas collection at Burns Bog, regional SO_2 reductions and encouraging work at home.

The Clouds of Change program has been successful in raising public consciousness and awareness of the urgency of addressing air quality and atmospheric change. The program provided a model and stimulus for other communities to follow. The City of Victoria has recently launched a Healthy Atmosphere 2000 initiative, modeled largely on *Clouds of Change*. In retrospect the Clouds of Change process has likely not met all of the expectations of the original authors, Council, staff or the general public. Some of the reasons mentioned are: the time lines originally established for some of the recommendations may have been too ambitious; in a few instances, the lack of additional funding may have delayed or resulted in changes to the original recommendations; and reliance upon or referral to senior levels of government have often been met with delays or inaction.

Problems: The *Clouds of Change Status Report*[4] explains that City staff and City Council have experienced some frustration in attempting to address those recommendations requiring action from senior levels of governments. For example, the heralded 3 cent per litre tax to fund transit improvement was approved by Council on June 18 1991, but has not been approved by the provincial government.

As for the CFC Regulation, although a discussion paper was circulated last fall with the promise of early proclamation of a provincial regulation controlling ozone-depleting chemicals, the City has yet to see any concrete action on the part of the provincial government. Meanwhile, the damage from ODCs continues. This summer visitors to Vancouver's beaches will be advised of the dangers of overexposure to the sun, in part because of the erosion of the protective ozone layer. Overall, there is a need to amend provincial legislation to address air quality issues.

Monitoring: It has been proposed that Council direct the Special Office for the Environment to coordinate an annual report in which all departments report to Council on progress during the year on atmospheric change targets; appoint an independent panel of experts and community representatives to review publicly the annual report and provide commentary to Council; instruct the Engineering Department to continue to monitor global warming trends and report periodically to Council on the current scientific consensus and possible adaptation strategies.

It will take some years to monitor progress on reduction in emissions of atmospheric

pollutants. Many committees exist for air quality. For example, the creation of an Air Quality Management Agency is responsible for ongoing lobbying of the provincial government. Each department reports yearly to the Special Office for the Environment regarding on-going programs.

Monitoring of the health effects of atmospheric pollutants and of woodburning in the city will be done in cooperation with neighbouring municipalities and the regional district.

1.3 WATER QUALITY AND CONSERVATION POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Water Conservation	X			1
General Water Quality	X			2
Drinking Water Quality	X			2
Wastewater Treatment Upgrading	X			2
Protection of Groundwater Supplies	†N/A			

† n/a: not applicable

WATER CONSERVATION

1. The summer drought of 1992 forced the City to adopt very strict measures (eg., for watering lawns) in order to save water. Educational programs to save water are under way.

DRINKING WATER QUALITY

2. Planned improvements for drinking water and wastewater treatment upgrading are under way.

EVALUATION

Success: Too early to evaluate.

Monitoring: The Greater Vancouver Regional District reports weekly on drinking water quality. The condition of beaches in the area is monitored and is reported in newspapers.

1.4 SOLID WASTE POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Waste Reduction	X			1, 2, 3, 5
Recycling	X			4, 5
Alternatives to Disposal	X			2

REDUCTION AND RECYCLING

The City has a waste reduction goal of 50 percent by the year 2000. It has been proposed that Council:

1. encourage the City and the GVRD to accelerate the reduction and recycling of solid waste and review programs of solid waste recycling and reduction on at least an annual basis to identify appropriate opportunities for expansion;
2. continue to urge the federal and provincial governments to introduce stringent standards regulating non-degradable, nonreturnable, and non-recyclable food and beverage packaging; direct the Special Office for the Environment to assess these standards when they are announced and report back on the desirability and feasibility of a supplementary City bylaw;
3. direct the City Engineering Department to assess the current pilot composting program and report back before the end of 1991 on the feasibility and desirability of expansion, including the possibility of joint neighbourhood programs with the Parks and School Boards;
4. direct the City Health Department, with the City Law Department, to study and report to Council before the end of 1991 on the regulation of small incinerators, such as those operated by some universities and hospitals, on the basis that such incinerators contribute to emissions of atmospheric pollutants;
5. existing programs for reduction and recycling include:
   - blue box recycling program
   - Backyard composting program / compost demonstration garden and hotline
   - Fall leaf collection and composting program
   - Apartment recycling pilot project
   - Multi-material recycling depots
   - Christmas tree recycling
   - Phone book recycling
   - 3Rs (reduce, reuse, recycle) education campaign
   - User-pay garbage collection
   - Tipping fee at disposal facilities
   - White goods ban at disposal facilities
   - Civic buildings program: the city has been recycling office paper at City Hall since

1989. It also distributes ceramic mugs to all employees for use in the cafeteria.

- Residential refuse can limit: to help achieve the City's 50 percent solid waste reduction goal, the basic weekly refuse can collection limit has been reduced from five to three for single family dwellings and from seven to five for duplexes. The reduction in limit, together with a fee for refuse collection in excess of the limit, provides another incentive for residents to reduce their solid waste. To accommodate those households that usually set out three cans or fewer per week, but on occasion need to set out more, each single family and duplex residence receives six free tags annually. To date only 18,500 tags have been sold (an average of one tag for every five houses), which indicates that Vancouver households are generally able to live with the reduced limits.
- Construction and demolition waste management: As the City works toward its 50 percent solid waste reduction goal, the demolition, land clearing, and construction waste (DLC) component of the waste management stream is an area that will receive further scrutiny. Current Engineering Department initiatives for managing the DLC waste include the following: all asphalt grindings from City projects are reused for special sub-base applications; clean asphalt and concrete rubble from street construction is taken to a local contractor for recycling; some crushed concrete is being used on an experimental basis as a subgrade material for sidewalks and residential roadways.

EVALUATION

Success: All above programs.

Problems: Many residents continue to place contaminants in their blue boxes such as magazines, egg and milk cartons, cereal boxes, and junk mail. These materials are part of the larger category of "mixed paper products" that are currently not accepted in the Blue Box Program. There is considerable pressure in the community to increase the number of materials collected in the Blue Box Program but the lack of available markets (for mixed paper and corrugated cardboard) and the high cost of the program are barriers to expansion.[5], [6]

Monitoring: Done for cost and use. For recycling and leaf composting programs, the quantity of materials collected and processed are measured. Costs associated with program operations are also tabulated.

1.5 HAZARDOUS WASTE POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Waste Reduction	X			1, 2
Recycling	X			2, 3
Alternatives to Disposal	X			2
Recycling	X			

REDUCTION

1. The provincial level of government is responsible for the management of hazardous material. However, the City does provide some educational support to its residents to complement the Province's efforts. The primary focus is on reduction of household hazardous waste materials.

ALTERNATIVES TO DISPOSAL

2. Household hazardous waste collection events: the material is recycled or properly disposed of;
3. collection of lead-acid batteries (automotive) at recycling depots.

EVALUATION

Success: Collection events are well attended.

Problems: No special treatment for any special kind of waste in Vancouver or in British Columbia.

Monitoring: None.

1.6 LAND USE POLICIES AND PROGRAMS

SUBJECT AREA		OBJECTIVES			POLICY & PROGRAM NOTES
		present	implicit	absent	
Protection of Agricultural Land		X			1
Natural Areas	Protection of Biodiversity		X		2
	Ecosystem Approach			X	
	Naturalization	X			3, 4
	Urban Forest	X			5, 6
	Natural Areas (including Environmentally Sensitive Areas)		X		7
	Greenway System/Open Spaces	X			7, 8
	Land Rehabilitation	X			9

AGRICULTURAL LANDS

1. The few remaining agricultural lands are protected through a clear policy at the regional level in the South Lands Area Plan. The Province has also designated Agricultural Land Reserves as a part of South Lands Areas. There is zoning in place to protect the few remnants of agricultural land. (Fraser River Land: also called South Lands).

BIODIVERSITY

2. No specific policy on biodiversity. A State of the Environment Report, including a plan for planting/maintenance of City forest will be produced by the Spring of 1993.

NATURALIZATION

3. Integrated Pest Management Control: The integrated pest management approach deals with pest problems as follows: survey of pests; monitor pest population levels; assess thresholds, conditions giving rise to or promoting the pest and the nature of the problem (acute or chronic); and determine the optimal solution. The results of a treatment are monitored to evaluate its success as well as any side effects. The use of pesticides is discouraged on public property, except in some specific cases (rose beds and golf courses); in some parks, it is completely banned. Notification is required before application. Some areas have been naturalized deliberately: the

riparian habitat Waterfront Park has been restored with the co-operation of the Fishery Department. River banks in intertidal areas have been left alone for naturalization;[7]

4. removing log booms on the Fraser River: Through the Park Board, the logs were removed to allow naturalization of the waterfront.

URBAN FOREST

5. The retention of mature trees on private property: Over the past few years, Vancouver became concerned about the loss of trees and the depletion of the urban forest. In 1992, the Province responded to Vancouver's concerns by amending the Vancouver City Charter and the Municipal Act to introduce tree cutting legislation. With this amendment, the City acquired the authority to protect mature trees on private property. The City can prohibit or regulate the cutting and removal of trees, regulate activities that may damage trees, and require the replacement of trees that have been cut or damaged in contravention of a bylaw;
6. tree planting on street and boulevards and in parks: To plant and nurture City forests and trees in City parks, on City streets, on private property, and to regulate the removal, damage or destruction of trees on private property in the City. This is done at the regional level.

NATURAL AREAS AND GREENWAY SYSTEMS

7. The urban landscape, greenways and environmentally sensitive areas are the responsibility of the Region (Greater Vancouver Regional District) rather than the City.

OPEN AREAS

8. Vancouver has a program of park acquisition to increase park land area in the City. For large development projects, a certain amount of land is dedicated to Parkland. The city is currently studying the possibility of charging homeowners for establishing parks in already built up areas.

LAND REHABILITATION

9. A policy is being implemented to build a continuous harbourfront walkway. A large tract of land in the southeast of the city which was formerly a garbage dump, has been rehabilitated. A site acquired from the Department of National Defence has also been rehabilitated and the new pond there attracts ducks.

EVALUATION

Success: Most policies and programs are too new to evaluate their success. The legislative authority obtained by the City to protect trees on private property is an improvement.

Problems: The retention of trees on private property is a difficult undertaking. It requires a strong public will to implement this program because intervening with private rights is always a difficult issue.

Monitoring: To be done in the future.

1.7 ENERGY AND TRANSPORTATION POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Intensification	X			1
Public Transit	X			2
Reduce Car Use	X			3-8
Cycling	X			9, 10
Residential Energy Use	X			11
Commercial/Industrial Use	X			12

The Greater Vancouver Regional District is responsible for energy management.

INTENSIFICATION

1. Encourage greater density through: multiple unit residential developments; new residential units in existing buildings or on previously developed, serviced land, so as to reduce commuting and urban sprawl. Converting industrial land to residential development; for example, Expo and Harbourfront lands are being developed for residential development.

PUBLIC TRANSIT

2. To study a road pricing system to fund public transit, provide transit passes for all university students, and use the revenues from these programs to improve transit service, reduce transit fares, and experiment with clean-burning fuels.

REDUCE CAR USE

3. To reduce transportation needs and developing more energy-efficient solutions. Creating a balance between people who live in the city and people who work in the city, and eliminate commuting; putting people closer to their work;
4. that Council direct the City Engineering Department to study, and report to Council on the principles for establishing parking policies favouring high-occupancy vehicles over single-occupancy vehicles;
5. in Area Plans, cluster higher densities around transit stations to reduce auto commuting. Encourage higher-density neighbourhoods close to commercial areas. Encourage conversion of commercial to residential development adjacent to employment in Downtown South;
6. policy not to allow freeways within the City of Vancouver;
7. downtown Model Split Policy in place: 60 percent transit; 40 percent auto for 10

years. Allow parking for only 40 percent of the employees;

8. encourage people to work at home for example, by providing opportunities for telecommuting rather than commuting, so as to reduce the need for transportation. This recommendation will encourage opportunities that reduce the need for transportation, and encourage local business to become leaders in technological and workplace developments that enhance this objective.

CYCLING

9. That Council direct the City Engineering Department to make bicycling a better transportation alternative by providing ample bicycle parking and related bicycle facilities (lockers); implementing and expanding the Vancouver Bicycle Plan; and improving enforcement of all traffic laws relating to road sharing by bicyclists and motorists. Part of the plan has been implemented through City Planning and the Greater Vancouver Regional District;
10. require bicycle plans for new residential developments

RESIDENTIAL ENERGY CONSERVATION

11. To meet energy conservation standards in all new and existing residential and commercial buildings, and to discourage practices and materials that produce atmospheric pollutants in all new construction.

COMMERCIAL ENERGY CONSERVATION

12. Efficient Street Lighting Program.

EVALUATION

Success: Policy 1 has been the most significant until now. It is too early to say for most other programs. For example, a limited downtown parking policy for cars will have effects only after many years. The Air Care Program (testing all vehicles as a condition of insuring them) will be implemented in the Fall of 1992 by the GVRD. The following items have been completed – i.e. staff have reported back to Council and Council has adopted recommendations: City fleet fuel use, encouraging work at home, parking initiatives, bicycling standards, energy conservation bylaw. A few items such as telecommuting are still awaiting action and their respective reports to City Council.

Monitoring: It has been suggested that Council

a) direct the City Engineering Department to monitor and evaluate progress in reducing emissions of atmospheric pollutants; to monitor and evaluate progress in reorienting subsidies from private to public forms of transit.
b) direct the City Engineering Department to report back during the 1991 budget process on the general approach and resource needs for preparing an annual report to Council on:
   - total vehicle usage, including occupancy rates, total volume of all motor vehicles fuel sold in the City,average trip length, and resultant changes in carbon dioxide and other atmospheric pollutant emissions;
   - the amount of all direct and indirect subsidies to private automobile use in the city

(e.g., the costs of road maintenance, traffic enforcement, parking enforcement, land that could be used for other purposes, etc.) compared with the amount of all subsidies to public forms of transit.

1.8 ENVIRONMENTAL IMPACT ASSESSMENT

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Environmental Impact Assessment			X	1
Cumulative Impacts			X	

ENVIRONMENTAL IMPACT ASSESSMENT

1. The environmental assessment process is not finalized yet and it will be included in the Official Plan currently being prepared.

EVALUATION

Problems: No staff is in place to implement policies such as the Interim Environmental Checklist for Local Area Plans and Rezoning Reports.

2 CITY OF EDMONTON

2.1 General Picture

The goal of Edmonton's municipal plan is to provide an attractive, safe, dynamic, accessible and sustainable environment in which people can live, work, move and visit. The city's economy took a dramatic downturn in the 1980s and while a recovery is in evidence, the prospects of growth have been much reduced. The new municipal plan accepts these changes and recognizes that the major issues facing Edmonton in the future cannot be resolved by growth alone. The population is 616,741 and the land area is 670.08 square kilometres. Strategic issues include: inner city areas, agricultural and the natural environment and transportation and utilities among others.[8]

The vision of the physical aspects of the city arising from this goal statement embodies these elements: a living environment that provides for a sense of human wellbeing in strong, safe and attractive communities with distinctive characteristics both in revitalized inner city areas and in the expanding suburbs. It also includes a need to protect high quality agricultural land and a natural environment that focuses on the unique attraction of the North Saskatchewan River Valley and Ravine System, protecting it and weaving it into the urban form.[9]

At present, the City is undertaking two major initiatives in order to incorporate a sustainable development approach into its plan:

1. The Planning and Development Department is acting to implement policies related to environmentally sensitive areas. The first step has been the preparation of an in-house Natural Areas Study. The study identifies Edmonton's natural areas, suggests a classification system to identify environmentally sensitive areas, suggests natural area protection through an improved environmental impact assessment process and recommends protection of selected natural areas through development of a city policy.
2. The second major initiative is the creation, by City Council, of an Environmental Task Force to prepare a report "identifying what City departments are doing, to establish what should be done, and to identify any new directions which must be taken internally and externally in order to ensure that the City of Edmonton is acting as a good corporate environmental citizen."[10]

The Environmental Task Force addresses many issues: energy efficiency and transportation, intensification, public transit and reduction of CO_2.

2.2 AIR QUALITY POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
CO_2 and Other Greenhouse Gases (e.g., Methane)			X	
SO_2			X	
NO_2			X	
Use of Alternative Fuels	X			2
Ozone depleting chemicals	X			1

OZONE DEPLETING CHEMICALS

1. A task force is working on this subject (1993 deadline). A purchasing policy is being developed. The Plan for elimination of CFCs will require federal and provincial legislation. No policies are in the municipal plan yet.

USE OF ALTERNATIVE FUELS

2. Creation of a network of electric buses; research on alternative fuels such as methanol, natural gas.

OTHER

In Alberta, air quality is a provincial jurisdiction. However, the City is looking at overall air quality in its plan. This is done in conjunction with the provincial Clean Air Strategy for Alberta. The Strategy has not yet reached the policy stage; an inventory of emissions from all sectors will be put together.

EVALUATION

Success: The elimination of halons from fire extinguishers has been successful. It is too early to evaluate other iniatives.
Problems: Electric buses have had maintenance problems.
Monitoring: None

2.3 WATER QUALITY AND CONSERVATION POLICIES

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Water Conservation	X			1
General Water Quality	X			2
Drinking Water Quality	X			3
Wastewater Treatment Upgrading	X			4
Protection of Groundwater Supplies	N/A			

WATER CONSERVATION

1. Pilot project to determine how much water the City could save by using water retrofit saving devices.

GENERAL WATER QUALITY

2. Although it is a provincial responsibility to test water quality, the municipal plan recommends sending effluent from snow storage to treatment facility rather than directly to watercourses.

DRINKING WATER

3. Ensure that development is consistent with the protection of the North Saskatchewan River, Edmonton's sole source of drinking water. Edmonton has its own water quality guidelines for potable or drinking water.

WASTEWATER TREATMENT UPGRADING

4. A plant exists. Installing U.V. disinfection; all sewage water is treated.

EVALUATION

Success: The City realized that its water use was already efficient because no water saving was achieved by using conservation devices.

Monitoring: The City keeps an eye turned upstream and approaches the Province if there are problems with pulp and paper mills. Water consumption is monitored by using meters; monitoring is done for cost, use and implementation.

2.4 SOLID WASTE POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Waste Reduction	X			1
Recycling	X			2
Alternatives to Disposal			X	

REDUCTION

1. Waste Reduction Program within the Corporation.

RECYCLING

2. Blue Box Curbside Recycling for single-family residences; yard waste composting; community recycling depots for apartment buildings; a team from the City does commercial waste audits for businesses; Christmas trees are recycled and the mulch is used in trails; office paper recycling in all City of Edmonton offices; telephone book recycling programs; paper recycling is emphasized in the school system; Master Composter and Recycling Program. The waste management budget is $25 millions for 1992.

EVALUATION

Success: All of these waste reduction programs have helped to reduce wastes by 130,000 tonnes each year. The Blue Box Program is very successful as 90 percent of the people use them.

Problems: The Waste Management Program is very expensive, especially the Blue Box Program as it generates 30,000 tonnes of garbage/year to recycle, which costs $200 for a tonne to collect. The landfill is reaching capacity and the City will have to find another site.

Monitoring: Done for cost, use, implementation and public support. Intense and continuous project management in all the programs.

2.5 HAZARDOUS WASTE POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Waste Reduction			X	
Recycling			X	
Alternatives to Disposal		X		1, 2

There is a waste treatment plant for hazardous waste in Swan Hills in Northern Alberta. Although hazardous waste is a provincial jurisdiction, the City participates in two ways:

1. Annual toxic hazardous household waste collection;
2. the City also ensures that the landfill does not accept toxic waste by using an on-site laboratory.

2.6. LAND USE POLICIES AND PROGRAMS

SUBJECT AREA		OBJECTIVES			POLICY & PROGRAM NOTES
		present	implicit	absent	
Protection of agricultural land		X			1
Natural Areas	Protection of Biodiversity		X		2
	Ecosystem Approach			X	3
	Naturalization	X			4
	Urban Forest	X			5
	Natural Areas (including Environmentally Sensitive Areas)	X			5, 6
	Greenway System/Open Spaces	X			6, 7, 8
	Land Rehabilitation			X	

AGRICULTURAL LANDS

1. Once converted to another use, agricultural land cannot be easily reclaimed. Agricultural land management should ensure that the land is not developed until it is essential for orderly and economical development; these agricultural areas should be clearly designated for agricultural use.

BIODIVERSITY

2. No specific strategy, but environmentally sensitive areas address this issue indirectly.

ECOSYSTEM APPROACH

3. The City is trying to head this way; Sewers Bylaws over total amounts of contaminants instead of concentration; the Air Quality Plan includes an ecosystem approach.

NATURALIZATION

4. Not identified in the municipal plan, but the Department of Parks and Recreation is considering park naturalization.

NATURAL AREAS/ ENVIRONMENTALLY SENSITIVE AREAS

5. The municipal Plan envisions a need to protect the natural environment and focuses

on the unique attraction of the North Saskatchewan River Valley and Ravine System, protecting it and weaving it into the urban form. In addition:

- prepare an Environmentally Sensitive Area study for the City to identify locally and regionally significant environmentally sensitive areas, classify such areas as to their importance, and identify which areas should be protected;
- establish a process for undertaking impact assessments for proposals affecting environmentally sensitive areas;
- establish design and mitigating measures to preserve environmentally sensitive areas;
- protect the natural environment of the North Saskatchewan River Valley and Ravine System. The goals of the North Saskatchewan River Valley Redevelopment Plan have been confirmed. Details outlining specific land uses and policies and program commitments to implement objectives are contained in the approved Area Redevelopment Plans for the River Valley, Rossdale and Cloverdale;
- limit the expansion of transportation and utility facilities in accordance with the North Saskatchewan River Valley Area Redevelopment Plan and other appropriate area redevelopment plans;
- permit limited residential development in the central area of the North Saskatchewan River Valley and Ravine System in accordance with the North Saskatchewan River Valley Area Redevelopment Plan and other appropriate area redevelopment plans.

GREENWAY SYSTEM

6. Provide and enhance linkages between downtown and river valley communities;
7. pursue plans and development of various open spaces and recreational amenities in the River Valley and Ravine System;
8. extend the Capital City Recreation Park within the existing River Valley Park System.

EVALUATION

Success/Problems: Too early to say.

Monitoring: None. When ESAs are created, the Environmental Assessment Process will be a way to monitor their protection. The City is not at that stage yet.

2.7 ENERGY AND TRANSPORTATION POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Intensification		X		1
Public Transit		X		2
Reduce Car use		X		
Cycling	X			3
Residential Energy Use	X			4
Commercial/Industrial Use	X			5, 6

INTENSIFICATION

1. Not in the municipal plan; however, an Environmental Task Force is looking at this issue among others, as well as public transit and reduction of CO_2 emissions.

PUBLIC TRANSIT

2. Not a specific policy, but an overall strategy.

CYCLING/ WALKING

3. Promote the development of a downtown pedway network as part of a balanced pedestrian circulation system that provides a safe, convenient, weather protected alternative for pedestrian movement between activity areas.

RESIDENTIAL ENERGY

4. The main initiative has been a Rebate Program to promote energy efficiency.

COMMERCIAL/ INDUSTRIAL ENERGY

5. Rebate program for energy efficiency An Energy Management Program exists within the Corporation. Energy Awareness Week organized by Alberta Energy (Province), environmental groups and Edmonton Power;
6. landfill gas recovery; methane gas is extracted from the landfill and used to generate electricity in a power plant.

EVALUATION

Problems: It is difficult to reduce car use, especially downtown; it creates economic hardship for business people who have shops downtown and are afraid of losing business.
Success: Transportation policies to promote public transit and reduce car use are successful.
Monitoring: Done for transit.

2.8 ENVIRONMENTAL IMPACT ASSESSMENT

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Environmental Impact Assessment			X	1, 2
Cumulative Impacts			X	

ENVIRONMENTAL IMPACT ASSESSMENT

1. The Plan recognizes the existence of natural areas and their importance within the urban setting. The intention is to establish detailed guidelines and to use these to prepare environmental impact statements for newly developing areas and establish design and mitigating measures to preserve environmentally sensitive areas.

2. The Province of Alberta will be requiring environmental impact statement for certain projects e.g., road building.

EVALUATION

Problems: The North Saskatchewan River Valley Area Redevelopment Bylaw is in place to monitor Environmental Impacts Statements, but limited resources make its enforcement problematic. Environmental impact assessment is neither compulsory nor comprehensive; the City is working on it.

3 REGINA

3.1 General Picture

Regina's population is 179,178 and its land area 111.39 square kilometres.

Regina adopted its plan in 1991. The philosophy of the plan includes the concept of sustainable development.

Sustainable development is defined in the plan as development that contributes to the maintenance or improvement of the quality of the urban environment over the long term, irrespective of the rate of growth or size of the community. Growth in the local economy must be considered in terms of its effects on environmental quality in addition to its effects on employment and population size, both in the short and long term.

Many studies are identified through the plan, e.g., a Waste Management Study, a review of the City's Open Space Management Strategy, and the City's Aquifer Contamination Risk Evaluation Study (1991). Implementation of the Development Plan's policies will require monitoring and careful allocation of resources on an on-going basis.

The Development Plan provides guidance for the location and form of Regina's development. Management of growth should ensure that peripheral growth and infill development is accommodated in an orderly and efficient manner.

3.2 AIR QUALITY POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Ozone Depleting Chemicals (ODCs)	X			1
CO_2 and Other Greenhouse Gases (e.g., Methane)	X			2
SO_2			X	
NO_2			X	
Use of Alternative Fuels	X			3

OZONE DEPLETING CHEMICALS

1. The City is considering O.D.C.s in its State of the Environment Report to be published in June 1993.

REDUCTION OF CO_2

2. The Forestry Department is in the process of planting 1 million trees; the goal of the City is to reduce CO_2 emissions by 20 percent before 1998.

USE ALTERNATIVE FUELS

3. The City uses alternative fuels in some of its vehicles: diesel, ethanol and propane.

EVALUATION

Success: Ethanol reduces maintenance costs.

Monitoring: Regina has an energy audit engineer for city energy audits.

3.3 WATER QUALITY AND CONSERVATION POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Water Conservation	X			1, 2, 3, 4, 5
General Water Quality	X			6, 7, 8
Drinking Water Quality				9
Wastewater Treatment Upgrading	X			10
Protection of Groundwater Supplies	X			11, 12, 13, 14, 15

WATER CONSERVATION

1. Policy states that the City shall establish a water conservation strategy applicable to City parks, buildings, properties and other public spaces;
2. that every measure to encourage water conservation in private development should be pursued, including providing advice to homeowners on alternative drought resistant plant materials and on reducing the watering of their lawns
3. that the potential for waste water recovery for use in irrigation;
4. that gentle slopes should be provided in subdivision upgrading plans to reduce rapid runoff;
5. that smaller lot development, including consideration of reduced front yard setbacks, should be encouraged.

WATER QUALITY

6. A public education program should be undertaken to inform the public regarding the value and sensitivity of Regina aquifers;
7. the City's Aquifer Contamination Risk Evaluation Study (1991), and the Regina Aquifers Sensitivity Mapping and Land Use Guidelines (1990);
8. environmental standards for industries to protect waterways.

DRINKING WATER

9. That City domestic water supply and sewage disposal systems shall be maintained and monitored to ensure acceptable standards for public health.

UPGRADING WASTE WATER SYSTEMS

10. That programs for upgrading and renewal of existing infrastructure (roads, sidewalks, pathways, domestic water, sanitary sewer, storm water, and transit systems) shall be undertaken on a continuous basis and priorized according to condition and projected redevelopment activity.

GROUNDWATER

11. That particular care must be taken to prevent contamination of the Regina aquifer;
12. that developments which use, store or warehouse hazardous materials shall be approved only if appropriate measures are undertaken to prevent possible contamination of the aquifer;
13. that the establishment of a Regina Aquifer Planning Authority, as recommended in the *Aquifer Contamination Risk Evaluation Study* and involving the City, other affected municipalities and the provincial government, should be pursued;
14. that an Aquifer Protection Overlay District should be superimposed on industrial areas of the City situated on the Regina aquifer system;
15. that special development standards for industrial development should be developed to protect groundwater resources.

EVALUATION

Success: Most initiatives just started 3-4 years ago, for example public education about water conservation; will be able to evaluate better in the future.

Monitoring: Development is monitored; landscaping plans are approved by the City through building permits; water meters are monitored.

3.4 SOLID WASTE POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Waste Reduction	X			1, 2
Alternatives to Disposal	X			1, 2, 3, 4, 5, 6
Recycling	X			1, 2

SOLID WASTE MANAGEMENT PLAN

1. A solid waste management strategy to encourage: the reduction of waste generation; the re-use of waste materials; the recycling of waste for other purposes; and/or the recovery and marketing of resources derived from waste.

RECYCLING

2. Big blue bin recycling program; Christmas trees are recycled; any tree which is cut is shredded and reused;
   a formal policy exists at the City and states that paper must contain recycled material;
   a provincial program exists for recycling of paper, glass cans, plastic bottles and clothes.

COMPOSTING

3. Done for residences and used in the parks; a bylaw will control the location of compost; that sanitary landfill operations shall be managed to minimize negative impacts on surrounding land uses and the natural environment including surface and subsurface hydrological systems; that consideration should be given to establishing a City program for composting residential waste by the City for use in parks.

ALTERNATIVES TO DISPOSAL

4. That preventative measures shall be incorporated into the design and operation of the sanitary landfill site to ensure the safe transport, disposal and processing of solid waste. The following are controlled at the landfill site: batteries, washers and dryers are recycled; waste concrete is recycled;
5. that a public education program shall be implemented to encourage voluntary actions that will reduce the need for solid waste disposal at the sanitary landfill site;
6. that the eventual use of the landfill site shall be considered and facilitated by appropriate contouring and landscaping of completed portions of the site.

EVALUATION

Monitoring: Done for cost, use, implementation and public support; a study on waste management and for a new landfill was done in 1989 for the provincial environmental impact assessment process.

3.5 HAZARDOUS WASTE POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Waste Reduction			X	
Recycling	X			1
Alternatives to Disposal	X			1, 2, 3

1. Recovery of household hazardous waste from the fire department; the City's garages use recycled oils and biodegradable soap;
2. the City no longer accepts liquid hazardous materials in landfill;
3. truck routes and hazardous goods routes are being reviewed.

3.6 LAND USE POLICIES AND PROGRAMS

SUBJECT AREA		OBJECTIVES			POLICY & PROGRAM NOTES
		present	implicit	absent	
Protection of agricultural land					1
Natural Areas	Protection of Biodiversity		X		2
	Ecosystem Approach		X		3
	Naturalization	X			4, 5
	Urban Forest	X			6
	Natural Areas (including Environmentally Sensitive Areas)	X			7-11
	Greenway System/Open Spaces	X			12
	Land Rehabilitation	X			13

AGRICULTURAL LANDS

1. Through regional Municipalities.

BIODIVERSITY

2. Done indirectly through inventories and protection of natural areas; that no subdivision or development shall be permitted that interferes with the continuing function of important wildlife habitats in the City of Regina; Falcon Breeding Program; Purple Martin nesting program.

ECOSYSTEM APPROACH

3. The City is evolving towards an ecosystem approach; the River basin of Wascana Creek has a special Aquifer Area Management.

NATURALIZATION

4. Encouraging the increased use of groundcover alternatives (e.g., use of "natural" or indigenous vegetation) other than fine turf through the City's landscaping standards; native species are used in parks to recreate native, prairie grass;
5. that alternative strategies to decrease the use of pesticides, herbicides and chemical

fertilizers should be considered.

URBAN FOREST

6. The Forestry Department is in the process of planting 1 million trees.

NATURAL AREAS

7. That the City should facilitate the preservation and enhancement of key natural areas;
8. that no subdivision or development shall be permitted that interferes with the continuing function of wildlife habitat: Wascana Waterfowl Park, Wascana Creek East, Regina Cemetery etc.;
9. that consideration should be given to the preservation of natural areas as an integral part of the open space system in new developing areas;
10. that natural areas should be maintained, to the greatest extent possible, as an environmental resource and as an educational resource to facilitate understanding and appreciation of the natural environment;
11. the City should facilitate the preservation and enhancement of key natural areas.

OPEN SPACES

12. A rationalization of open spaces is under way: decreasing the quantity and increasing the quality The Parks and Open Spaces section in the municipal plan outlines many environmental policies and includes the Open Space Management Strategy as the implementation mechanism for the long-term improvement and rationalization of the City's significant park spaces.

REHABILITATION

13. Some landfills have been rehabilitated as parks.

EVALUATION

Success: Regina has one of the highest park/open space per capita ratios in Canada.
Monitoring: just starting to monitor.

3.7 ENERGY AND TRANSPORTATION POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Intensification	X			1, 2, 3, 4, 5
Public Transit	X			6, 7, 8, 9, 10, 11
Reduce Car use		X		
Cycling/Walking	X			11
Residential Energy Use	X			12
Commercial/Industrial Use	X			12

The Development Plan section on Energy Conservation contains 19 specific recommendations ranging form higher development densities, inner city redevelopment, solar orientation and transit.

INTENSIFICATION

1. Servicing areas of growth; directs development to readily serviceable areas with the developers required to "front end" many of the costs;
2. that a compact urban form should be achieved by: reducing the proportion of land dedicated to roads through efficient subdivision design; discouraging leapfrog development; favouring the continued development of new areas with higher densities; promoting infill redevelopment and rehabilitation;
3. that higher density development should be encouraged along public transit routes;
4. that residential densities should be allocated in the process of subdivision design and zoning (e.g., mixed uses) in a manner that places higher densities closest to the principal employment centres;
5. that two storey, semi-detached and townhouse units having less outside surface area, and therefore less heat loss than a bungalow of the same floor area, should be promoted.

PUBLIC TRANSIT

6. Traffic congestion and the long range planning for transportation has been included in the major study known as the 1991 Transportation Study;
7. the Regina Transit Business Plan (1990-94) encourages the use of public transit;
8. higher density development is encouraged along major arterial streets for public transit;
9. a Transportation Strategy has been developed and adopted through a senior interdepartmental Committee;

10. the Development Plan supports public transit in Regina.

CYCLING/WALKING

11. Outlines policies regarding wind and shade impacts, public art and displays, pocket parks and street enhancement; calls for the development of a City-wide "bikeway" network.

RESIDENTIAL ENERGY CONSERVATION

12. That where north/south orientation of lots is not possible, zoning relaxations of side yard requirements, which enable reorienting the house on the lot to maximize solar heat gains, should be considered.

EVALUATION

Problems: Public transit is difficult to promote because people are very much used to their cars.

Monitoring: Done for cost, and costs are controlled for all programs; housing density is controlled; the audit engineer does some monitoring.

3.8 ENVIRONMENTAL IMPACT ASSESSMENT

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Environmental Impact Assessment		X		1
Cumulative Impacts			X	

ENVIRONMENTAL IMPACT ASSESSMENT
Environmental Impact Assessment is done indirectly for smaller projects; for larger projects, it is a provincial responsibility.

1. That methods to address the potential impact of existing industries should be considered, including: review and monitoring of environmental impacts; providing advice and assistance to existing industries in undertaking remedial measures; formation of industrial improvement associations; facilitating the selective relocation of industries where remedial measures are not possible; identifying and planning for areas in the region where industries utilizing hazardous materials can best be developed; establishing a public education program to inform the public regarding the value and sensitivity of the Regina Aquifers.

OTHER
That quantitative performance standards shall be established for industrial use zones to address fire and explosion hazards, visual impacts, surface water contamination, noise, odour, smoke and particle emissions; that the City of Regina should encourage the abatement and/or relocation of industries which do not meet environmental performance standards.

4 WINNIPEG

4.1 General Picture

Winnipeg's population is 616,790 and its land area 571.60 square kilometres. Winnipeg is still in the process of reviewing its municipal plan. The Review '92 Coordinating Committee together with the Board of Commissioners submitted a draft *Plan Winnipeg: Toward 2010*, on February 13, 1992, for the consideration of the City's Executive Policy Committee. This report recommended a community plan whose essential message is that the City must look beyond its traditional role of providing basic services to one which addresses the quality of life.[11]

Broad issue areas include: economic development, social equity, environmental stewardship, urban development management, and urban image. Policies for environmental stewardship have been developed under the following headings:

- Sustainable Development
- Environmentally-Responsible Decision-making
- Water Conservation and Source Protection
- Waste Minimization
- Waterways Initiatives
- Management of Sensitive Lands
- Energy Conservation
- Noise Reduction
- Air Quality Measures

4.2 AIR QUALITY POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Ozone Depleting Chemicals (ODCs)	X			1
CO_2 and Other Greenhouse Gases (e.g., Methane)	X			2
SO_2		X		3, 4
NO_2		X		3, 4
Use of Alternative Fuels	X			5

OZONE DEPLETING CHEMICALS

1. City purchasing policy to reduce the use of products that damage the ozone layer. An ozone depleting substances study has been done for the city and has resulted in: mandatory labelling; mandatory recovery from fire extinguishers; purchasing policies; and a ban for halons.

CO_2 REDUCTION

2. A coal plant was closed in June 1989 under order of the Clean Environment Commission by the authority of the Clean Environment Act.

GENERAL AIR QUALITY

3. Land use measures requiring that industries be located far from residences; the City cooperates with other levels of government and industry in adopting and enforcing regulations to reduce emissions, to limit harmful or toxic substances and to control odours;
4. adopt measures in the City's own operations to reduce air pollution.

ALTERNATIVE FOSSIL FUELS

5. A pilot study for the use of propane in police vehicles; new ethanol-powered buses purchased (ethanol) to cut down on emissions; new blends of diesel.

EVALUATION

Success: Too early to say.

Monitoring: Will be done for all strategies for cost and public support. The Health and Safety Division tests indoor air quality for radon for all buildings with air-conditioners.

4.3 WATER QUALITY AND CONSERVATION POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Water Conservation	X			1
General Water Quality	X			2
Drinking Water Quality	X			3
Wastewater Treatment Upgrading	X			4
Protection of Groundwater Supplies	X			5

WATER CONSERVATION

1. The City shall employ and encourage water conservation measures and shall endeavour to increase the efficiency of water use; a study will be done.

WATER QUALITY

2. Maintain the highest practical level of river water quality in a cost-effective manner and consistent with natural characteristics of rivers and water quality standards; Clean Environment Commission Hearings will set river water quality targets for the City; snow dumping monitoring program.

DRINKING WATER

3. A drinking water management plan exists for the Shoal Lake area, which includes an environmental impact assessment for the entire watershed and involves all other levels of government. The plan includes: an ambitious aqueduct restoration and reservoir upgrading, negotiations regarding development with the Indian bands living along the shore of Shoal Lake, and a Shoal Lake watershed management plan with Ontario.

WASTEWATER TREATMENT UPGRADING

4. A $94 million study and upgrade program for the sewage treatment system to deal with combined sewer overflows has been initiated.

GROUND WATER

5. Protection of groundwater supplies as a potential source of drinking water; currently at the present time, the water comes from Ontario (Shoal Lake) and is untreated.

EVALUATION

Success: All programs are fairly recent and therefore difficult to evaluate. Public education will be necessary to promote water conservation.

Monitoring: will be done for cost, use, implementation and public support.

4.4 SOLID WASTE POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Waste Reduction	X			1
Recycling	X			1, 2
Alternatives to Disposal	X			1, 3

REDUCTION

1. The City seeks to reduce the production, collection, transportation and disposal of solid and hazardous waste; a Waste Minimization Program exists for the City's own operations; initiatives have to be cost-effective.

RECYCLING

2. There is an active recycling group for residential units in Winnipeg; i.e., the stimulus comes from the public. However, there is no Blue Box Program.

ALTERNATIVES TO DISPOSAL

3. When exhausted, landfill will be reclaimed for parks and golf courses. A viability study to extract methane as a source of energy from landfills will determine whether it is it cost-effective.

EVALUATION

Success: Most programs have been in place for a few years. Sewage sludge is given to rural farmers; reusing of asphalt pavement used to resurfacing; Winnipeg municipal hospital runs an alternative disposal for diapers, as well as a waste minimization program. There is still debates on the best approach for waste management; purchasing policy for the City Office; the office program for the 3Rs (reducing, recycling, reusing); and the bins for waste disposal.
Monitoring: All landfills are monitored.

4.5 HAZARDOUS WASTE POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Waste Reduction	X			1
Recycling			X	2
Alternatives to Disposal	X			3

REDUCTION

1. Minimize production.

RECYCLING

2. Recycle ethylene glycol (anti-freeze).

DISPOSAL

3. A Hazardous Waste Management facility will be constructed outside of Winnipeg and hazardous waste will be treated there; the City shall cooperate with the other levels of government and private interests in addressing the danger posed by hazardous waste generated from domestic, industrial and commercial sources; disposal of hazardous waste is not permitted in landfills and sewers without an Environment Act license.

OTHERS

The City shall designate routes for the transport of hazardous waste products and dangerous goods; the City shall employ and encourage, measures to minimize the introduction of toxic substances into the environment.

4.6 LAND USE POLICIES AND PROGRAMS

SUBJECT AREA		OBJECTIVES			POLICY & PROGRAM NOTES
		present	implicit	absent	
Protection of agricultural land				X	
Natural Areas	Protection of Biodiversity			X	1
	Ecosystem Approach			X	
	Naturalization				2, 3
	Urban Forest	X			4
	Natural areas (including Environmentally Sensitive Areas)	X			5-7
	Greenway System/ Open Spaces	X			7, 8
	Land Rehabilitation			X	

BIODIVERSITY

1. No general statement but protection is provided for Tall Grass Prairie Habitat.

NATURALIZATION

2. Some areas owned by the City are allowed to grow wild;
3. the Park Department tries to reduce the use of herbicides as a cost-saving measure as much as an environmental measure.

URBAN FOREST

4. Tree management (Dutch Elm disease).

NATURAL AREAS AND ENVIRONMENTALLY SENSITIVE AREAS

5. Protect, preserve and maintain riverbanks and promote riverbank development that is environmentally appropriate and sensitive to the aesthetic quality of the landscape;
6. prepare Sensitive Lands Plan to designate areas that are environmentally sensitive and that will provide measures for the preservation, protection and the maintenance of such areas;
7. evaluate and regulate development that is proposed for natural or environmentally sensitive lands and lands that are susceptible to flooding or slope failure.

OPEN SPACES/GREENWAY SYSTEM

8. The City shall upgrade neighbourhood parks within established neighbourhoods and acquire and develop additional park land in accordance with specific neighbourhood requirements. The City shall establish a system of community parks within new communities. The City also wants to establish a system of regional parks, and urban fringe parks in the Winnipeg region. The City shall establish a lineal open space and park system.

EVALUATION

Success: Most strategies are new and therefore difficult to evaluate.
Problems: Naturalization of parks has not worked very well.
Monitoring: Done for all strategies for cost, use, implementation, public support.

4.7 ENERGY AND TRANSPORTATION POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Intensification				1
Public Transit	X			2
Reduce Car use	X			3
Cycling	X			4
Residential Energy Use	X			5
Commercial/Industrial Use	X			6

INTENSIFICATION

1. Is not an issue because of the slow growth of the City; programs exist for inner city revitalization.

PUBLIC TRANSIT

2. Public awareness program; commitment to improve the transit system by integrating land use, urban design and transportation planning.

REDUCE CAR USE

3. The City shall encourage environmentally-responsible practices that will reduce energy use, pollutant emissions, and increase the proportion of trips made by multi-occupant vehicles and non-motorized means.

CYCLING

4. Promote alternative modes of transportation, such as cycling and walking.

RESIDENTIAL ENERGY CONSERVATION PROGRAMS

5. Power Smart Program to reduce growth in demand for electricity; includes public education.

ENERGY MANAGEMENT PLAN

6. The City shall prepare, implement, and periodically review an energy management plan to reduce energy use, to improve energy efficiency, to lower operating costs, and to decrease emissions from civic buildings, structures, and City-operated vehicles. The city has undertaken a five year program to replace incandescent street lights with high pressure sodium lamps.

OTHER

Adjust green light at peak hours to reduce stops.

EVALUATION

Success: The Power Smart Program is working; public transit ridership is up and car ridership is down. The cost of the street lighting program has been recovered through energy savings.

Monitoring: Done for cost.

4.8 ENVIRONMENTAL IMPACT ASSESSMENT

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Environmental Impact Assessment			X	1
Cumulative Impacts			X	

ENVIRONMENTAL ASSESSMENT

1. Environmental assessment is now under provincial jurisdiction; however, environmental impact reviews of City projects are done for any public work which may significantly affect the quality of the human environment. Many projects of the Transportation Department require an environmental impact assessment that considers emissions.

5 SUDBURY

5.1 General Picture

In the Region of Sudbury, all planning, including policy planning and lot creation, is now done by the upper tier. This arrangement has been found to be economically and administratively efficient, and seems to serve the interests of both upper and lower tier.[12]

Sudbury's plan incorporates the following ecological principles: development should be in harmony with nature; natural ecosystem processes should be respected and incorporated into design, construction and maintenance activity; air, water, soil, vegetation, wildlife and visual quality should be enhanced and improved; and development should be assessed on its long-term on the environment.

The plan demonstrates a concern for the environmental impact of development activity, energy and resource efficiency, agricultural sustainability, and the aesthetics of the natural and built environment.[13]

5.2 AIR QUALITY POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Ozone Depleting Chemicals (ODCs)			X	
CO_2 and Other Greenhouse Gases (e.g., Methane)			X	1
SO_2	X			2
NO_2			X	
Use of Alternative Fuels			X	

CO_2 REDUCTION

1. There are general statements to reduce air pollution, for example, that generated by cars, but no specific policies.

SO_2 REDUCTION

2. The reduction of air pollution from smelter emissions remains the City's most significant environmental priority.
   The City is working with management and labour at Inco and senior levels of government to reduce air pollution by 61 percent from the present level by 1994 through smelter modernization.

EVALUATION

Success: Reduction of air pollution by Inco has been very successful.

Monitoring: Done by INCO and the Ministry of the Environment; the regional municipality does not have the technology or the financial resources to undertake this endeavour.

5.3 WATER QUALITY POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Water Conservation			X	
General Water Quality	X			1, 2, 3, 4, 5, 6,
Drinking Water Quality			X	done by the Ministry of the Environment
Wastewater Treatment Upgrading	X			7, 8
Protection of Groundwater Supplies	X			6

WATER QUALITY

1. Prohibit all uses or mitigate those impacts which would significantly degrade the water supply potential of Lake Ramsey;
2. require proponents of major developments (expansion and new) to apply the full cost of downstream drainage upgrading which is made necessary as a result of the proposed development;
3. install silt and filter beds at storm sewer and drainage ditch outfalls to prevent silt and pollutants from entering receiving waterbodies, where necessary and feasible;
4. require proponents of major development (expansion or new) to pay 100 percent or an agreed upon amount of the cost of up-grading off-site water infrastructure which is made necessary as a result of the proposed development;
5. restrict unserviced waterfront residential development in Rural Districts where waterbody studies carried out by Regional Council in the future indicate the need for additional controls;
6. evaluate impacts on waterbodies when considering applications for rezoning. In addition to requiring communal sewer services where necessary, Regional Council may require the proponent to:implement erosion control measures during construction; provide properly designed storm drainage such that urban runoff will not increase erosion from the site; implement control measures to prevent pollutants such as oil, grease, fuel, or hazardous chemicals from entering area waterbodies; and ensure that the proposed development will not be detrimental to identified fish spawning grounds or other wildlife habitat.

WASTEWATER TREATMENT UPGRADING

7. Undertake upgrading or replacement of sanitary sewer infrastructure in need of improvement;
8. ensure that sewerage system capacity is adequate to service development without requiring major sewerage system expansions.

5.4 SOLID WASTE POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Waste Reduction	X			1
Recycling	X			1, 2
Alternatives to Disposal	X			1, 2

1. Explore waste reduction, reuse, recycling and recovery options as a means of extending the life of Sudbury's landfill site;
2. explore economic means of utilizing solid waste as a resource (e.g., energy, compost).

5.5 HAZARDOUS WASTE POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Waste Reduction	X			1, 2
Recycling			X	
Alternatives to Disposal	X			3, 4

WASTE REDUCTION

1. Encourage manufacturing processes which will have minimal environmental impacts;
2. discourage the production of any hazardous waste that the community would not be prepared to treat or store.

ALTERNATIVES TO DISPOSAL

3. Seek the safe treatment and storage of all toxic waste or hazardous material produced or stored locally;
4. not accept for permanent storage or disposal hazardous wastes that are produced outside of the region unless the Region is satisfied that such an undertaking would not create any long term hazards for the local environment.

OTHER

transportation of hazardous waste: press for the construction of the South-East Bypass as a mean of reducing the need for inter-city traffic of hazardous materials passing through the City; work with shippers of hazardous waste to minimize the risk of hazardous materials transport through the community; press for legislation at senior levels of government to require shippers of hazardous materials to inform municipalities of the nature of their shipments.

5.6 LAND USE POLICIES AND PROGRAMS

SUBJECT AREA		OBJECTIVES			POLICY & PROGRAM NOTES
		present	implicit	absent	
Protection of agricultural land		X			1
Natural Areas	Protection of Biodiversity		X		2
	Ecosystem Approach			X	3
	Naturalization	X			4, 5, 6
	Urban Forest	X			7, 8, 9
	Natural areas (including Environmentally Sensitive Areas)	X			10, 11
	Greenway System/Open Spaces		X		10, 11
	Land Rehabilitation	X			13, 14

AGRICULTURAL AREAS

1. Lands located at the periphery of urban settlement or lands that are not slated for development are designated as Rural District. In Rural Districts, permitted uses are: agriculture, forestry, conservation, animal hospitals and veterinarian clinics, commercial kennels, and public use.

BIODIVERSITY

2. Encourage measures that will increase the diversity of vegetation and wildlife species within the area. Establish nesting boxes and feeding locations for desirable urban wildlife species.

ECOSYSTEM APPROACH

3. Has been used for Ramsey Lake Community Improvement Plan (1991). The guiding principles defining the long term vision for Ramsey Lake are: Ramsey Lake and its watershed are an ecological region; the ecological integrity of Ramsey Lake must be preserved and enhanced for future generations; Ramsey Lake must continue to be an environmental focus for the growing community of Sudbury; and co-operative and pro-active actions by all parties in the community are required for the implementation of this community vision. This approach will be used more widely in the future.[14]

NATURALIZATION

4. Upgrade area soil capability so that it can again support a wide range of plant species;
5. throughout the area, vegetation and wildlife have been adversely affected by past air pollution damage or urban development. Measures which increase vegetation and compatible wildlife types and which also foster greater understanding of the important role each of these elements play within the urban ecosystem will contribute significantly toward maintaining a high quality environment;
6. reduce use of pesticide.

URBAN FOREST

7. Provide greater use of vegetation to create desirable microclimate, reduce air pollution, stabilize slopes and erodible soils, absorb stormwater runoff, reduce water pollutants, provide wildlife habitat, and enhance appearance;
8. maintain and enhance representative ecosystem associations, such as Lily Creek, for visual diversity and wildlife habitat;
9. continue to plant a variety of vegetation (trees, shrubs, plants and grass) throughout the area through the Region's Land Reclamation Program and the City's Parks Department.

NATURAL AREAS/ENVIRONMENTALLY SENSITIVE AREAS

10. Regional Council recognizes some areas (Lake Laurentian) as Environmentally Sensitive Areas. Uses which will detract from this potential shall not be permitted;
11. it shall be the program of Regional and or City Council to prepare a concept plan for and implement programs to develop the area's five lakes for conservation and recreational use.

OPEN SPACES

12. To systematically review the provision and development of all parkland given anticipated population levels so that limited public sector funds can be used most effectively to meet future parkland recreation needs. It shall be the policy of Regional and City Council to promote landscape improvements and tree planting initiatives within areas designated as open spaces.

REHABILITATION

13. Reduce soil erosion particularly from steeper slopes through revegetation efforts;
14. the Regional Municipality of Sudbury won a United Nations Local Government Honours Award. With the assistance of the federal and provincial governments, the Regional Land Reclamation Programme has revitalized approximately 3,000 ha. and significantly improved another 1,000 ha., about 40 percent of the damaged area.

EVALUATION

Problems: There are legal and jurisdictional problems associated with the ecosystem approach.

Monitoring: A draft has been prepared for natural areas assets, but no standing policies exist.

5.7 ENERGY AND TRANSPORTATION POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Intensification		X		1
Public Transit	X			2, 3, 4, 5
Reduce Car use	X			6
Cycling/Walking	X			7
Residential Energy Use	X			8, 9, 10
Commercial/Industrial Use	X			8, 9, 10

INTENSIFICATION

1. The City privileges development within the City to urban sprawl.

PUBLIC TRANSPORTATION

The automobile will remain the primary mode of personal transportation for the foreseeable future. Nevertheless, transit is an essential component of the City's transportation strategy. The City intends to:

2. provide additional service at peak hours in high ridership areas;
3. evaluate reductions of service on the basis of the revenue to cost rates;
4. consider practical methods of improving passenger comfort and convenience at the downtown transfer point;
5. provide an alternative transportation system for those people who are unable to use Sudbury Transit by reason of physical disability.

REDUCE CAR USE

6. In order to promote the integration of places of employment and places of residence, two areas in the metro centre have been designated as the Metro Centre Transition District.

CYCLING/WALKING

7. It shall be the program of Regional and City Council to develop a plan for an integrated, functional, safe, and aesthetically pleasing pedestrian walkway and bicycle path system.

RESIDENTIAL ENERGY CONSERVATION

8. Train building inspectors and other appropriate municipal employees in efficient energy management techniques in order to provide information to homeowners on upgrading the thermal efficiency of their homes;

9. encourage building and landscape design that conserves energy and reduces waste;
10. promote the siting of buildings to best exploit the area's passive solar energy potential.

EVALUATION

Success: A high parking fee downtown has reduced car use.

Problems: Lack of staff, time and money to implement most of these policies, for example promoting the siting of buildings to best exploit the area's passive solar energy potential; little staff training done; public transit is not well developed and the private car remains the favourite means of transportation; cycling paths and trail system have not been implemented.

5.8 ENVIRONMENTAL IMPACT ASSESSMENT

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Environmental Impact Assessment			X	1
Cumulative Impacts			X	

ENVIRONMENTAL ASSESSMENT PROCESS

1. No provisions under the Regional Municipality of Sudbury.

6 CITY OF TORONTO

6.1 General Picture

The population of Toronto is 635,395 and its land area is 97.15 square kilometres. The Cityplan '91 process has brought to the forefront of public debate a broad range of issues and concerns about the future of both the Central Area and the City of Toronto as a whole. In the initial stages, the Cityplan '91 Task Force and other public outreach efforts provided opportunities for understanding the kind of city and planning process Torontonians want for their city. The Task Force, comprising over 40 representatives from many constituencies within the city, met over a period of several months, and explored in detail three broad areas of concern: social equity, managing growth and quality of life. The Task Force recognized that physical land use and development is inextricably linked with the social and economic forces that shape people's everyday lives in the city.

The state of the natural environment, air , water, and soil are directly affected by virtually every land use and transportation decision made. Cityplan '91 acknowledges this and moves beyond the traditional land use focus of the City's Official Plan, to introduce entirely new sections of the Plan dealing with the environment, social planning, the arts, built form and urban design, and City heritage. Some of the proposals in the report might be a bit ahead of the required provincial enabling legislation. Rather than shying away from such issues, however, this report recommends that the City actively seeks the necessary legislation.

The City of Toronto lies at the heart of an extended urban region, which in 1986 housed 3.73 million people, who worked at 2.08 million jobs, spread over an area comprised of 5,613.71 square kilometres in the five regions of Halton, Peel, Metropolitan Toronto, York and Durham. The City's municipal plan cannot be created in isolation from the economic and social forces shaping the natural environment in the Greater Toronto Area. The Plan also attempts to recognize regional trends; points out environmentally-sound ways to accommodate regional growth; and shapes the City's future role within the region in such a way as to encourage this ecologically-desirable pattern of growth.

Just as growth in the economy and labour force in the 1950s and 1960s led to the development of the suburban municipalities and the creation of Metropolitan Toronto, the sprawling urbanized area known as the Greater Toronto Area is a by-product of the economic growth of the 1970s and 1980s. Since the recession of 1981-1982, the regional economy has shown so much dynamic growth that the Greater Toronto Area became one of the fastest growing regions in North America. Unfortunately, most of this development was in the form of low-density, automobile-dependent "urban sprawl", the most inefficient urban form in terms of energy, transportation and land use. It also represents the most harmful pattern in terms of air pollution, global warming, and the destruction of greenland and farmland.

Urban sprawl is a major problem in the Greater Toronto Area. The Cityplan Proposals

Report recommends ecologically-sound policies to promote and protect the natural environment, to minimize pollution and energy consumption, and to encourage responsible stewardship of land resources. The Cityplan '91 policy proposals also focus on ways to create a better fit between employment and housing opportunities and to create a city that is attractive to residents, workers, and employers alike.

Cityplan has not yet been adopted and is currently being revised in light of the lingering recession in the Toronto area.

6.2 AIR QUALITY POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Ozone Depleting Chemicals (ODCs)	X			1
CO_2 and Other Greenhouse Gases (e.g., Methane)	X			2, 3, 4, 5,
SO_2	X			2
NO_2	X			2, 4
Use of Alternative Fuels	X			6

OZONE DEPLETING CHEMICALS

1. CFC bylaw to ban the manufacture, sale, distribution, and use of items which are disposable and discharge CFCs and Halons into the atmosphere in the City of Toronto. No purchase of equipment using CFCs or HFCs for manufacture and operation. The bylaw aims to prevent unnecessary discharge from any kind of refrigerator; prevents the use of fire units containing halons; encourages the recycling of refrigerators.

REDUCTION OF EMISSIONS

2. Encourage the reduction in the quantity of carbon-based fuels used in any activity within the City including the operation of vehicles and buildings, and any activity that supports City life but which may occur outside the City. To help achieve this, Council: adopts as its objective the reduction of carbon dioxide (CO_2) emissions from all sources within the City of Toronto by 20 percent of the 1991 levels by the year of 2006; shall seek to improve the quality of emissions that result from burning carbon-based fuels in vehicles, buildings or any other activity in the City; adopts as its objective the reduction of carbon monoxide (CO), hydrocarbon (HC), and oxides of nitrogen (NOx) emissions from vehicle exhausts, furnace fuels and smokestacks by 20 percent of the 1991 levels by the year 2006, without an increase in other noxious emissions; adopts as its objective the reduction of sulphur dioxide (SO_2) and nitrogen dioxide (NO_2) emissions by 25 percent of 1991 levels by the year 2006; shall promote measures to reduce private automobile use within the City; shall promote the proper maintenance and use of cleaner combustion and cleaner exhaust systems in vehicles and heating systems of buildings within the city; and shall promote and facilitate the provision and use by residents, workers and visitors of alternate means of transportation such as public transit, including surface transit, cycling, and walking, and shall encourage such activity by, among other things, providing a pleasant

pedestrian environment. Council shall encourage the application of strict provincial standards to new development in the city to ensure that Council's goals for air quality are met. Further, Council shall encourage and support the development of comprehensive, enforceable standards by the province for indoor and outdoor air quality. Council shall ensure that the City of Toronto "sets-the-example" and implement measures to make its vehicles and buildings and related functions as fuel efficient and pollution free as possible

3. see policies on Transportation;
4. Anti-idling Policy: municipal vehicles will not idle longer than 3 minutes;
5. the URBAN CO_2 Reduction Project is an initiative of the International Council for Local Environmental Initiatives (ICLEI). ICLEI has established the URBAN CO_2 consortium to help municipal governments develop effective strategies for reducing fossil fuel use in their jurisdictions. The project is designed to tap into already existing resources and expertise to: develop a municipal policy framework for CO_2 reduction, including analytical and modelling tools for assessing its technical and economic feasibility; assess the cost, equity, employment, and institutional implications for reducing CO_2 emissions by 60 percent from present levels over the next 25 to 50 years in urban areas; encourage wider municipal interest and action on global warming by facilitating the growth of a network of local governments concerned with the issue.

USE OF ALTERNATIVE FUELS

6. Natural gas substitution for gasoline and electricity.

EVALUATION

Success: Most of these programs are too new to evaluate the success or problems.
Problems: Problems have arisen in the implementation of the CFC Bylaw. It is costly for the service industry to pump old refrigerant. It is quite labour intensive as it takes several people to disassemble the refrigerators. The Province has to set standards for the manufacture of new equipment. The City has no legislative authority to enforce the Bylaw. The Province has been requested to prepare enabling legislation to permit the City to enforce this Bylaw.
Monitoring: Monitoring has been done for cost, use and implementation. A data base has been compiled in order to identify changes in energy consumption in Toronto.

6.3 WATER QUALITY AND CONSERVATION POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Water Conservation	X			1, 2, 3, 4, 5
General Water Quality	X			6, 7, 8, 9
Drinking Water Quality	X			10, 11
Wastewater Treatment Upgrading	X			12
Protection of Groundwater Supplies	N/A			

WATER CONSERVATION

1. Council shall seek the reduction of water consumption by 10 percent on a per capita basis of the 1991 levels by the year 2001. A Water Conservation Plan is to be submitted with development applications along with energy conservation and waste reduction plans, together with mitigation measures for noise and vibration;
2. promotional program to convert to individual metering;
3. free supply of water conservation kits;
4. educational programs with school boards;
5. free water audit for commercial and industrial consumers.

GENERAL WATER QUALITY

6. The Don Valley Task Force is a City coordinated group of volunteers whose purpose is to restore the Don River;
7. it is Council's objective to reduce chemical, bacterial, or sediment loadings that contaminate water bodies as a result of City activities, and to establish a program to monitor and control City activities to that effect;
8. Council shall initiate and support programs to clean up, rehabilitate, and protect the natural aquatic ecosystems within and adjacent to the City of Toronto;
9. Council shall support the guidelines and strategies established by the provincial government to improve water quality and to control storm water flows within and adjacent to the city. To this end, Council shall prepare and adopt a Master Drainage Plan and seek to ensure that development plans comply with the Master Drainage Plan.

DRINKING WATER QUALITY

10. Council shall encourage the development by the provincial and federal governments of uniform standards for drinking water;
11. Council shall monitor the quality of drinking water within the city and shall

encourage the provision of adequately clean water, for drinking, and industrial and commercial purposes.

WASTEWATER TREATMENT UPGRADING

12. This is Metro Toronto's responsibility. Council shall seek to ensure that City-controlled or influenced storm and sanitary sewer discharges into natural bodies comply with provincial Water Quality Objectives. Further, Council shall attempt to reduce water pollution by adopting and advocating appropriate storm water management techniques. To help achieve this objective, Council shall seek to eliminate the need to post notice of health hazards at public beaches because of water pollution by the year of 2001 and seek to reduce the use of manufactured chemical pesticides within the city from all sources by 50 percent of the 1991 levels by the year 2001.

EVALUATION

Success: All water conservation programs (1-5) are considered a success due to the promotional and educational components.

Problems: Information not available.

Monitoring: Done for cost, implementation and water quality at beaches.

6.4 SOLID WASTE POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Waste Reduction	X			1, 2, 3
Recycling	X			4
Alternatives to Disposal	N/A			6

WASTE REDUCTION

1. Reduce significantly the amount of waste created in the city. To achieve this objective, Council shall: promote and facilitate among residents, business, institutions and visitors to the city, the reduction, reuse, repair, and recycling of waste products, in a manner that protects human health and minimizes adverse impacts upon the natural environment; set the example in its own activities with respect to waste reduction; and adopt as its objective, a 50 percent reduction of solid waste in the City by the year 2001, with 1991 taken as the base year;
2. weekly collection of organic yard waste. Fall leaf collection for composting by Metro Toronto. Distribute, (with Metro) backyard composter units and operate a pilot kitchen wet waste project for 1,500 homes;
3. a City Council Policy requires all new developments to submit Waste Reduction and Material Recovery Plans.

RECYCLING

4. Regular collection of Blue Box materials from single-family residences, apartments, institutions, retail stores and restaurants, as well as, scheduled collection of white goods and servicing of on-street recycling containers;
5. packaging bylaws: The City has applied for special legislation to allow it to pass bylaws prohibiting or regulating the distribution, use and disposal of any material used for the purpose of packaging products for retail sale where such material is not:
   - compatible with other reuse and recyclable initiatives;
   - acceptable for return to the distributor of the product for reuse or recycling; or
   - acceptable for curbside source separation recycling by the City.
6. disposal is the responsibility of Metropolitan Toronto and the provincial government; the City is responsible for collection.

EVALUATION

Success: Items 2, 3 and 4 have been successfully implemented although recyclables from apartments tend to be more contaminated than those from other locations.

Problems: Information not available.

Monitoring: Recycling is monitored for cost, use, implementation and public support.

6.5 HAZARDOUS WASTE POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Waste Reduction	N/A			1
Recycling	N/A			
Alternatives to Disposal	N/A			1

WASTE REDUCTION

1. Encourage all significant generators of hazardous waste in the city to complete hazardous waste audits and waste reduction plans by the year 2001 and seek to ensure that environmentally acceptable methods for handling, storage and disposal of hazardous waste products are put in place and maintained in all new developments within the City that will generate, transport or store such waste.[15]

OTHER

This is largely a provincial government responsibility. A Proposal on a PCB Management Strategy is being prepared by the Environmental Protection Office.

EVALUATION

Success: Information not available.

Monitoring: None.

6.6 LAND USE POLICIES AND PROGRAMS

SUBJECT AREA		OBJECTIVES			POLICY & PROGRAM NOTES
		present	implicit	absent	
Protection of agricultural land		X			1
Natural Areas	Protection of Biodiversity		X		2
	Ecosystem Approach		X		3
	Naturalization	X			4
	Urban Forest	X			5-12
	Natural Areas (including Environmentally Sensitive Areas)	X			5-12
	Greenway System/Open Spaces	X			13, 14, 15
	Land Rehabilitation	X			16-19

AGRICULTURAL LANDS

1. It is Council's goal to promote an environmentally-sensitive approach to development throughout the Greater Toronto Area to reduce the rate of urban development of agricultural lands and natural areas, curb urban sprawl and make better use of municipal infrastructure. Farmland and open space outside of the built-up urban area would be preserved.

BIODIVERSITY AND NATURAL AREAS

2. Ecological integrity, diversity and stability are objectives of the plan. A State of the City Report is being prepared by the Healthy City Office and environmental indicators will be developed with it.

ECOSYSTEM APPROACH

3. Although not a part of the Toronto Official Plan, it is important to mention the Royal Commission on the Future of the Toronto Waterfront which is one of the best example of an ecosystem approach for the Toronto region.

NATURALIZATION

4. Natural Regeneration Areas (Parks and Recreation).

URBAN FOREST

See notes 3-10

NATURAL AREAS

5. Protect, preserve, and maintain natural areas of the city in perpetuity;
6. within designated Natural Areas which are publicly owned, Council shall seek legislative authority to permit: only such land use as are compatible with the principles of preserving and conserving such areas: leisure uses and activities, such as walking, cross-country skiing, teaching or research activities, or wildlife and natural area management activities; the minimal development required to support these activities;
7. in areas adjacent to the designated Natural Areas of the city, Council shall allow only that development that has minimal adverse environmental impacts and is sensitive in its design to the environmental qualities of the Natural Area;
   To this end, Council shall: encourage a buffer zone of 10 metres adjacent to Natural Areas within which development is prohibited, and where this is clearly impractical provide a large setback from the boundary of the Natural Area as possible; and encourage the submission of environmental impact evaluations to be made in association with development review applications in respect of developments that are adjacent to Natural Areas;
8. establishment of an Ecological and Environmental Advisory Committee which will offer the City expertise in subjects such as botany and wildlife biology in order that the Natural Areas of the city be satisfactorily protected;
9. Environmentally Sensitive Areas are those portions of Natural Areas that are particularly sensitive and require additional protection to preserve their significant qualities. Within all ESAs Council shall prohibit, subject to obtaining legislative amendments, if necessary, any and all development, and shall limit activities to those that are compatible with the preservation of the area's qualities;
10. Council recognizes that Natural Areas and Environmentally Sensitive Areas are not synonymous with Open Spaces designations but that Natural areas and Environmentally Sensitive Areas are components of the City's Open Space System;
11. land stewardship is proposed for the future;
12. promoting the planting of a variety of native trees in private and public spaces in order to promote nature within the City, reduce carbon dioxide, provide visual buffers to unattractive sites, and promote natural habitat continuity and linkages for wildlife. Encourage the preservation of existing trees on public and private property in the city, and seek legislative authority from the Province to prohibit the cutting of trees on private lands.

OPEN SPACES/GREENWAY SYSTEM

13. Council will develop and will encourage the development of a significant system of

parks and open spaces connected by continuous paths suitable for use by pedestrians, cyclists, and skiers. The Lakeshore, the Toronto Islands, regional parks, the ravines and potential linked networks of parks, open spaces and routes designated as the Open Space System shall form the essential elements of the system;

14. Council will seek to create green routes along linear corridors such as defunct rail corridors and rail corridor setbacks for use by pedestrians, cyclists and skiers, as well as landscaped streets as part of the continuous Open Space System;
15. Council will seek the co-operation of private owners and public authorities and agencies who own land in areas designated as Open Space System to achieve the development of these parks and open spaces and the routes that connect them.

REHABILITATION

16. Council shall encourage all appropriate governments and agencies within the Don River Drainage Basin and shall itself participate within the limits of its jurisdiction, to regenerate the entire Don River to a natural form, function, and habitat;
17. Council shall endeavour to ensure with the appropriate government authorities, if necessary, that contaminated soil does not create a hazard for the health of natural ecosystems or for the people who live, work and play within the city. Council shall seek to ensure, with the appropriate government authorities, if necessary that,: development does not occur on any site within the City that presents a health risk caused by contaminated soil, and that no development be permitted on a site containing contaminants without its risks to health being evaluated and, where appropriate, a full soil management study being completed and necessary mitigation measures employed; the mitigation measures employed do not create a health hazard within or beyond the City's jurisdiction; and contaminated soils are cleaned up;
18. Council shall encourage and support the establishment of comprehensive, enforceable provincial standards for the evaluation, decommissioning and clean up of contaminated soils in the city;
19. Council shall endeavour to ensure that development on any site within the City's jurisdiction reasonably complies with applicable government guidelines and standards for decommissioning and clean up of contaminated soils.

OTHER

Environmental performance standards for new developments: Council shall, except where it determines otherwise, develop and employ to the extent of its legislative capacity, a comprehensive set of Environmental Performance Standards in 12 areas of concern, so that all new developments within the City shall be as appropriate for the sustainability of the environment as possible; they are: car use reduction and car parking reduction; contaminant and pollutant emission reduction; waste management; energy conservation; indoor air quality; storm water management; water conservation; noise and vibration minimization; pedestrian comfort (sunlight and wind); environmental management of construction and demolition; contaminated land, its remediation, re-use, and contaminant disposal; and flood management and control. Council shall seek to ensure that the Environmental Development Standards are

adhered to in new development and redevelopment by using all its powers of regulation and review, including Section 40 of the Planning Act. Until such time that the Environmental Development Performance Standards are developed and implemented, Council shall request the proponents of any development over 10,000 square metres to provide an environmental report showing how the development has been designed to address, as appropriate, the environmental issues set out in the section above.

EVALUATION

Success: Too early to evaluate.

Monitoring: Too early for most programs and strategies but will be done in the future. It is the policy of Council to monitor, evaluate and report periodically on the success of its environmental policies, its Natural Areas and Environmentally Sensitive Area protection policies and its environmental objectives and standards.

6.7 ENERGY AND TRANSPORTATION POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Intensification	X			1-5
Public Transit	X			6, 7
Reduce Car use	X			8, 9
Cycling	X			10
Residential Energy Use	X			11
Commercial/Industrial Use	X			12

INTENSIFICATION

1. Encourage residential intensification through creation of rooming, boarding and lodging houses, creation of accessory apartments, conversion of non-residential structures to residential use, infill, and redevelopment;
2. land use/transportation relationship: encourage housing development in the Central Area to substitute for the need to build costly additions to the transportation system to bring more commuters into and out of the Central Area; reach an appropriate balance among housing, office development and commuting levels;
3. continue to promote a compact form of regional growth that places homes and jobs closer together, and encourages public rather than private transportation;
4. give strong recognition to the role of additional housing in the Central Area as a means of reducing long-distance commuting;
5. in support of the policy of intensification, Council will seek to achieve a balanced pattern of development growth based on an assumed average annual rate of office space absorption of 128,000 square metres and a targeted average annual rate of housing production of 3,500 additional units in the Central Area during the period extending to the year 2001.

PUBLIC TRANSIT/TRANSPORTATION PLANNING

To improve the quality of life by promoting transportation policies that reduce rather than increase air pollution;

6. give recognition to the needs of a growing Central Area population for better local transit services, as well as improved conditions for cycling and pedestrian travel; provide an equitable level of public transportation services for people with disabilities;
7. increase the capacity, enhance the attractiveness and improve the operational efficiency of surface transit (streetcar, trolley and diesel bus) routes serving the Central Area. Measures supporting these objectives should include, but are not

limited to: reserved transit lanes; priority for transit vehicles at traffic signals; improved fare collection methods; improved access to and shelter at transit stops; premium and express transit services; and additional routes and connections.

REDUCE CAR USE

8. Reduce car use by limiting auto commuting levels to present volumes by adopting, where deemed necessary, appropriate measures to control the number of autos used for commuting into and out of the Central Area, giving particular attention to influencing the supply of Central Area parking to achieve this end; increase City Parking Authority fees to the market rate in the Central Area and increasing rates to discourage all but brief use of the spaces; increase parking meters fees; encouraging the federal government to remove "free parking" from the list of non-taxable fringe benefits that employers may provide; and considering a reduction in the required and permitted amount of parking for new developments in the Central Core;
9. increasing auto-occupancy levels policies by promoting ride-sharing; promoting reserved lanes for high occupancy vehicles.

CYCLING

10. Implement programs that support greater and safer use of the bicycle as a mode of transport, including: the development of a network of on-street and off-street bike lanes and paths; encourage the development of road design and maintenance standards that reduce the risk of accidents and injuries to cyclists; secure bicycle parking facilities at subway and GO stations to encourage combined bicycle/transit trips; require new major developments to provide secure bicycle parking and, where appropriate, shower/change facilities for bike commuters.

ENERGY EFFICIENCY/RESIDENTIAL AND COMMERCIAL

11. The Energy Efficiency Office created by Council and by the Special Advisory Committee on the Environment and Healthy City Office has a role to play in the field; an Energy Efficiency and Conservation Plan (EECP) is to be submitted with development applications;
12. auditing and retrofitting City-owned buildings; energy efficiency standards and audits have been completed for all new buildings.

EVALUATION

Success: Too early to say.
Problems: Information not available.
Implementation: Decisions on major transportation projects will continue to be made incrementally, largely on an individual basis.
Monitoring: For energy programs: cost, use, implementation, public participation and potential energy reduction through approved EECPs. Monitoring is done through various data management computer programs.

6.8 ENVIRONMENTAL IMPACT ASSESSMENT

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Environmental Impact Assessment	X			1
Cumulative Impacts			X	

ENVIRONMENTAL ASSESSMENT

1. The proposed Environmental Performance Standards (see: Land Use Policies) are designed to ensure that all new developments will be environmentally sound. A simple checklist of environmental standards and guidelines that must be used before development approval is granted will be drawn up. Until this is completed, Council will require developers of large-scale developments (i.e., those in excess of 10,000 square metres) to submit an environmental report that sets out how each of the various environmental concerns will be met.

OTHER

Human comfort in the public realm: to address the impact that buildings have on people, Council shall maintain and improve, where feasible and appropriate, current levels of human comfort. To achieve this objective, Council shall set standards for wind exposure and sun availability, restriction of shadows for passive and recreation spaces, retail strips and streets in general, which will assist in determining permissible built form envelopes and design.

7 OTTAWA

7.1 General Picture

Ottawa's population is 313,987 and its land area 110.15 square kilometres.

The mission statement of new Ottawa Official Plan is:

> City Council accepts that change is an on-going phenomenon in cities which must be managed within the parameters imposed by the overriding aim of preserving a lasting habitat for humanity and wildlife. It also recognizes that economic prosperity can provide us with the capability to support wise resource management, to meet social needs and to improve environmental quality. Therefore, City Council supports an approach to managing urban development which balances the rights of the individual and the needs of society with the need to conserve our natural resource base and enhance the natural environment, thereby promoting the health of Ottawa's inhabitants and communities

Contrary to the common belief that the general public rarely gets excited about planning and its implications except when groups feel that their interest may be threatened, the citizens of Ottawa participated in every stage of policy formulation, and have made a significant contribution toward shaping the plan into its present form. They held the decision-makers, their elected representatives, accountable for the development of an Official Plan that was "environmentally sensitive", and in the process provided the needed support and mandate to the professional planners to develop a "green" plan.[16]

The plan recognises the need to practice environmentally sustainable urban development by adhering to urban design principles that respect Ottawa's bioregion, reinforce natural processes, and conserve natural resources.[17]

7.2 AIR QUALITY POLICIES PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
Ozone Depleting Chemicals (ODCs) Reduction	present	implicit	absent	
	X			1
CO_2 and Other Greenhouse Gases (e.g., Methane)	X			2
NO_2	X			2
SO_2	see Transportation Policies			2
Use of Alternative Fuels	X			2

OZONE DEPLETING CHEMICALS

1. The City take whatever action is possible and practical to avoid purchasing products that are manufactured by processes that would release CFCs into the atmosphere, to favour products that are manufactured with non-ozone-depleting substances, and to recover ozone-depleting substances prior to the disposal of cooling devices. A report on CFCs and halons identifies areas where CFCs and halons are currently in use in the City of Ottawa; where substitutions can be made; where recovery and recycling will have to take place.

ALTERNATIVE FUELS

2. Investigate and implement use of alternative and non-carbon emitting fuels in public transit vehicles. Natural gas and electricity have been experimented with.

EVALUATION

Success: Too early to say because all these policies and programs are new.

Monitoring: The monitoring of the implementation of official plan policies is done for each strategy on an annual basis. Indicators will be developed for better monitoring.

7.3 WATER QUALITY AND CONSERVATION POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Water Conservation	N/A			regional responsibility
General water Quality	X			1-8
Drinking Water Quality	N/A			regional responsibility
Wastewater treatment upgrading	X			6
Protection of groundwater supplies	X			8

GENERAL WATER QUALITY

1. City Council shall ensure that modern storm water management techniques are employed in the design and implementation of all development, to control both quantity and quality of urban runoff. The intent will be to minimize the adverse effects of urban runoff on the downstream aquatic environment and recreational uses of the water;
2. may require a master drainage plan prior to the approval of an official plan amendment affecting a large tract of undeveloped land;
3. shall require storm water design plans as the basis to evaluate plans of subdivision, condominium and site plans;
4. shall take the lead to ensure the development of policies and programs to address storm water pollution from existing storm water drainage systems, in cooperation with the Regional Municipality of Ottawa-Carleton and other agencies;
5. shall, in order to prevent any adverse impact on watercourses from development, determine suitable water setbacks for specific types of development and proper uses of the shore areas adjacent to waterbodies and watercourses, in cooperation with appropriate agencies;
6. shall evaluate the opportunity to incorporate, as a priority, the provincial Model Sewer Use bylaw into City bylaws, as an interim means of controlling toxic contaminant discharge into waterways, in anticipation of the adoption of the MISA (Municipal-Industrial Strategy for Abatement) regulations;
7. shall adopt additional measures to regulate the quality of storm water. This may relate to such practices as street de-icing and cleaning and control of materials exiting from construction sites.

GROUNDWATER PROTECTION

8. Council shall work to minimize contamination of ground water and soils in and around former industrial and waste disposal sites.

7.4 SOLID WASTE POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Waste Reduction	X			1
Recycling	X			1
Alternatives to Disposal	X			2, 3

WASTE REDUCTION AND RECYCLING

1. Undertake programs to reduce, re-use, recycle; currently through Blue Box, Christmas Tree and Mulch programs;
2. accommodate waste handling needs, consistent with the Regional Master Plan Program (when in effect) and the Ontario Ministry of the Environment environmental controls.

WASTE DISPOSAL

3. Disposal is a regional responsibility. City Council will not support the establishment of landfill sites and/or the operation of incinerators within the City of Ottawa.

EVALUATION

Success: All programs mentioned are successful.
Problems: The cost of recycling newspaper is greater than the benefits.
Monitoring: All these programs are very well monitored by the Engineering Department.

7.5 HAZARDOUS WASTE POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Waste Reduction	X			1, 2, 3, 4
Recycling			X	
Alternatives to Disposal	X			4

REDUCTION

1. Purchasing policies are being introduced by the City.

DISPOSAL

2. Review hazardous waste storage and disposal. Collections of household hazardous waste are done twice a year.

EVALUATION

Success: The collections have been highly successful.

7.6 LAND USE POLICIES AND PROGRAMS

SUBJECT AREA		OBJECTIVES			POLICY & PROGRAM NOTES
		present	implicit	absent	
Protection of agricultural land		X			1, 2
Natural Areas	Protection of Biodiversity	X			3, 4, 5
	Ecosystem Approach	X			6
	Naturalization	X			7, 8
	Urban Forest	X			9, 10
	Natural Areas (including Environmentally Sensitive Areas)		X		11-15
	Greenway System/Open Spaces	X			16-27
	Land Rehabilitation				28

AGRICULTURAL LANDS

1. City Council shall designate the Central Canada Experimental Farm as an Agricultural Area on Schedule A - Land Use, and shall interpret these policies in conjunction with the policies on the Greenway System;
2. shall support the federal commitment to the long-term conservation of these lands for agricultural and urban forest uses, including research, educational and leisure activities, and as a vital contributor to the Greenway System.

BIODIVERSITY

3. City Council shall require, as part of Municipal Environmental Evaluation Report for proposals in natural areas, an assessment of the impact of development on wildlife through a census of resident wildlife populations on site proposed for development; City Council shall encourage research, public education and awareness program to generate understanding and appreciation for urban wildlife and their needs and to promote a harmonious coexistence between urban residents and wildlife;
4. City Council shall ensure that development on lands that abut the Greenway System are also planned/designed to integrate with the natural environment of the system;
5. City Council shall, in cooperation with other affected agencies/owners, develop and implement a management plan to sustain natural processes in the Greenway System.

This plan may include research, policy development, public relations, securement and implementation.

ECOSYSTEM APPROACH

6. City Council shall recognize the mandate and coordinating role of the Region and the involvement of other agencies in water quality improvement, to ensure an ecology based strategy for water quality management with municipal support and involvement of other departments and agencies.

NATURALIZATION

7. City Council shall continue to naturalize municipally-owned open spaces (i.e., to increase the amount of urban forest) and shall apply a percentage of the funds saved by eliminating the need for regular maintenance towards the naturalization of the affected area and/or towards the naturalization of other municipally-owned spaces;
8. shall continue to eliminate the use of environmentally-damaging chemical pesticides on privately/publicly owned property, and shall strongly encourage a similar approach by other municipalities, business, government and non-government agencies in the region. City Council shall seek the enabling legislation to regulate the use of environmentally damaging pesticides on private property.

URBAN FOREST

9. City Council shall require, as a condition of development and planning approval, the conservation and enhancement of existing urban forest, wherever possible;
10. City Council, together with the Regional Municipality of Ottawa-Carleton, shall maintain and increase the urban forest inventory on road rights-of-way, particularly in the Central Area by:
    - requiring that for every tree that is removed from road rights-of-way, a replacement tree is provided, where possible in the same general location as the tree removed;
    - requiring that appropriate space for a tree planting corridor/area (and associated vegetation) within road rights-of-way is included in the design for roads (either improvements or new construction);
    - maximizing tree planting through site plan approvals, subdivision agreements and through streetscaping programs.

NATURAL AREAS/ENVIRONMENTALLY SENSITIVE AREAS

11. City Council has also designated environmentally sensitive areas and developed policies to protect them from development which may cause adverse impacts on unique features or on the ecosystem of the area;
12. to cooperate with all levels of government and other interested parties/community representatives to identify, designate, conserve and protect new and existing ESAs; encourage public management of land within an ESA or other significant natural area and shall ensure their conservation through acquisition, transfer of lands, negotiation with landowners and developers, land trusts, development agreements or any other

means at its disposal;

13. to promote public awareness of ESAs to ensure their on-going protection, conservation and enhancement by encouraging public participation, information and education, including land stewardship programs and will work with interested persons/agencies towards this end;
14. City Council shall identify Areas of Natural and Scientific Interest and support other governments' (Ministry of Natural Resources) commitments to the long term conservation of these areas including research, education and enhancement;
15. City Council shall support the development of "natural" wetlands in Ottawa, which aside from their environmental value, may also be used as natural settlement ponds for urban stormwater.

GREENWAY SYSTEM

16. To create a variety of usable open spaces that accommodate a broad range of human activities and encourage year round use. City Council shall promote the preservation and design improvement of open spaces such as parks, portions of the Greenway System, and scenic landscapes along parkways, driveways, and ceremonial routes, which establish the image of Ottawa and enhance the adjacent built environment. City Council shall ensure that open spaces such as public ornamental parks, squares and gardens are preserved, and shall ensure that the maintenance and improvement of these open spaces is designed to reflect the architectural character of the surrounding area;
17. City Council shall ensure that all development proposed within the Greenway System is sensitively located/designed to integrate with, and enhance the natural environment. This shall be achieved by
    - minimizing the loss or degradation of wildlife habitat and wetlands and of the urban forest;
    - minimizing the amount of hard surfaces (e.g. surface parking) that are associated with development;
    - naturalizing, or otherwise, reinforcing existing urban vegetation and urban forest on lands surrounding development;
    - requiring sensitive design/planning, e.g., protecting wildlife corridors and habitats, preventing reductions in groundwater levels, avoiding negative impacts upon the waterways; respecting unique geological and geographical features; minimizing erosion or degradation of soils;
18. City Council shall require, as a condition of development and planning approval the maintenance and integration of natural features into the site;
19. shall designate the conceptual location of the Greenway System. The Greenway System shall consist as a composite of those areas designated as Environmentally Sensitive Areas, Waterway Corridor, Linkage, Agricultural Area and Major Open Space;
20. may permit limited development within selected areas of the Greenway System; shall protect against loss through development or disposal of any part of the Greenway System;

21. shall require an amendment to the Official Plan to utilize any portion of the Greenway System, for a use not intended by these policies;
22. City Council shall pursue the extension and enhancement of the Greenway System (i.e. completing interrupted links) through a variety of methods including acquisition, land exchange, long-term lease, easement agreements, placing conditions on development approvals, land trusts or any other means at its disposal;
23. City Council shall initiate, in cooperation with affected agencies and owners, the establishment and development of a land stewardship program for the conservation and enhancement of the Greenway System, including the establishment of a privately or publicly held land trust;
24. City Council shall, where warranted and feasible, encourage public management of private land within the Greenway System; it shall promote the interconnection of the Greenway System with other natural areas and open spaces or any other desirable parcels of land not already part of the system that would enhance the overall integrity of the natural environment;
25. City Council shall establish, in consultation with adjoining municipalities, regional and federal authorities, locations at which the Greenway System may connect with other systems performing a similar function;
26. City Council has also designated Waterways Corridors as an integral component of the Greenway System and adopted many policies for their protection;
27. City Council has designated Linkages as an integral component of the Greenway System.

REHABILITATION

28. City Council shall consider existing abandoned pit and quarry sites within the City of Ottawa, as areas of development constraint; shall have regard to the following matters/requirements, while considering a proposal for any new pit and quarry development: the compatibility of the proposal with the surrounding land use and environment, including effects on local water table; satisfactory provisions and undertakings shall be made for progressive rehabilitation of the lands and the implementation of an overall rehabilitation plan upon conclusion of pit and quarry operations, including preservation and replacement of top soil, removal of all buildings, machinery and equipment, and appropriate grading and elimination of all unsightly conditions.

EVALUATION

Success: Public support is high for ESA designation and the Greenway System. The ban on pesticide use on private property is in process. The restriction on spraying dandelions has been successful on public properties.

It will take a few years to make the necessary legislative amendments to implement the ESA designation.

7.7 ENERGY AND TRANSPORTATION POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Intensification	X			1
Public Transit	X			2
Reduce car use	X			3, 4
Cycling	X			5
Residential Energy Use	X			6, 7
Commercial/Industrial Use	X			7, 8

INTENSIFICATION

1. The City of Ottawa must strive toward an energy efficient land use pattern, both for job and housing location, which sensitively increases intensity within present boundaries to control growth on the urban fringe, thereby reducing energy consumption, pollution and infrastructures costs and relieving pressures on adjacent natural areas and agricultural lands. The City shall facilitate development that minimizes energy consumption and emphasize the use of renewable energy sources by locating housing, employment, services and leisure areas in a manner that reduces distance and vehicle trips.

PUBLIC TRANSIT

2. Ensure that the design of roads, sidewalks and open space networks, provide easy access to the transit system; encourage the provision of motor vehicle and cycle parking in locations convenient to transit stations; recommend new transitway routes; encourage development that promotes transit use; encourage transit improvements and new initiatives for transit; develop incentives for transit use and safety in the design of public transportation facilities.

REDUCE CAR USE

3. City Council shall maximize opportunities for the use of energy efficient modes of travel and reduce energy consumption for automobile travel by increasing opportunities for non-auto transportation including cycling, walking, buses and alternative vehicles,
4. reduce energy consumption and improve quality of natural environment by introducing measures to reduce the amount of carbon emissions from automobiles including:
   - reducing the need for long-term non-residential parking spaces in intensive employment areas (e.g., the Central Area and Employment Centres);

- promoting ride sharing such as car/van pooling;
- supporting park-and-ride facilities for automobiles and cycles at suitable stations;
- providing parking incentives in city-operated parking facilities that favour high occupancy vehicles;
- increasing commuting by pedestrians and cyclists through the preparation and implementation, as a priority, of the Comprehensive Cycling Plan and the Comprehensive Walking System Plan;
- promoting the use of public transit;
- supporting the development of central and common parking areas, where appropriate.

CYCLING

5. Integrate cycling with road system; prepare and implement a Comprehensive Cycling Plan; promote cycling as an alternative mode of transport.

RESIDENTIAL ENERGY CONSERVATION

6. Consider energy conservation as an important factor while reviewing subdivision, rezoning, site plan and other development applications; encourage use of appropriately selected and located vegetation and urban forest that will reduce the energy consumption of buildings; and require in areas of new development the provision of opportunities for south facing and solar collectors;
7. identify areas within the City of Ottawa that have potential for passive solar development and with the cooperation of local developers and property owners, consider designating an area or areas for such development.

COMMERCIAL ENERGY CONSERVATION

8. Initiate, cooperate and participate in effective energy conservation programs (such as high efficiency street lighting, heat pumps, improved building insulation standards) that will enhance energy efficiency in Ottawa.

EVALUATION

Success/Problems: Too early to say.

7.8 ENVIRONMENTAL IMPACT ASSESSMENT

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Environmental Impact Assessment		X		1
Cumulative Impacts			X	

ENVIRONMENTAL ASSESSMENT

1. City Council shall require a Municipal Environmental Evaluation Report as the basis for assessing development proposals within the Greenway System, including those areas designated Environmentally Sensitive Area, Waterway Corridor, Linkage, Major Open Space, and contaminated sites and existing pits and quarries; and for any proposed waste management facility and snow disposal site; this Municipal Environmental Evaluation/Assessment Process will, as a planning tool, integrate environmental considerations into project planning, development and implementation by evaluating the impacts of development activity on the environment, prior to its approval. The details and guidelines are being prepared (draft).

8 MONTREAL

8.1 General Picture

Montreal's population is 1,017,666 and its land area 177.24 square kilometres. At the end of 1992, Montreal adopted the first master plan in its history. Unfortunately, not many environmental initiatives have been integrated in the official plan; this means that most strategies and programs presented in this research have been developed independently from the official plan.

The environment is treated in a decentralized manner: eight of Montreal's 12 municipal departments are directly involved with environmental affairs. They are: the Department of Corporate Affairs, Supply and Properties, Recreation and Community Development, Housing and Urban Planning, Planning and Coordination, Fire Prevention, Public Works, and the Commission on Economic Development.[18] By promoting this integration of the environment into various departments, the City of Montreal hopes to develop multisectorial management of municipal environmental affairs. Insofar as the overall coordination of the City's environmental policy is concerned, the Environment Unit of the Planning and Coordination Department is the major agent.

A guide, *Environmental Initiatives of the City of Montreal: A Reference Guide 1991*, grew out of the Administration's choice to share responsibility among several departments rather than to concentrate all available resources in a single Environment Department.

Land use planning and management concerns, such as soil management, open spaces, transportation and energy are approached from a perspective of sustainable urban development. Environmental management also demands changes in established work methods. It is hoped that concern for the environment will be reflected clearly in the internal management of the City at every level, from data compilation to selection criteria for projects to the evaluation methods of programs and policies.

By signing, in 1991, the declaration of the Third Summit of the World's Major Cities, Montréal officially approved the principle of sustainable urban development and demonstrated its willingness to research modes of development that respect the needs of both the population and the natural environment. In the City Plan, four fundamental principles are defined within this context: the consolidation of the city centre, as opposed to urban sprawl; promoting public transportation; the protection of natural elements and the control of environmental problems; and social equity principles.

The consolidation of the city centre can be achieved by measures such as consolidating housing in existing neighbourhoods and protecting the built heritage of the city. Various strategies are proposed to improve the transportation system and to reduce the presence of the automobile. New concentrations of office space are to cluster around metro stations, reserved bus lanes are planned for city streets serving areas of concentrated employment,

and recommendations are made for improving service in residential neighbourhoods. Bicycle paths are planned to facilitate non-motorized transportation. The plan promotes the implementation of a greenway system. This involves the transformation of unused city space into pedestrian or cycle paths linking neighbourhoods, natural sites and parks.

The plan seeks to protect the unique natural heritage of Montreal: the Mountain, the St. Lawrence and des Prairies Rivers, the islands, the public and the private woods. The plan proposes measures to reduce pressures on the natural elements, for example, by improving snow removal and disposal techniques to protect water quality.

The spirit of the equity principle is expressed by promoting policies to encourage the participation of residents in decisions that affect their neighbourhood, as was the case in the adoption of the plan itself.

The City has published three documents related to solid waste management collectively entitled *Le Défi Déchets: Un défi d'avenir* (The Waste Challenge: A Challenge for the Future).[19] Although this management plan has not yet been approved by the City, it has been analyzed for this research. The global objective of the plan is to reduce waste by 82 percent by the year 2010. The City has undertaken to create, in association with other municipalities, a regional system of mobile hazardous waste collection combined with a sorting and recycling centre.

8.2 AIR QUALITY POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Ozone Depleting Chemicals	X			1
CO_2 and Other Greenhouse Gases (e.g., Methane)	X			2, 3
NO_2		X		
SO_2		X		
Use of Alternative Fuels				4

In Montréal, air quality control is the jurisdiction of the Montréal Urban Community and senior levels of governments. Nonetheless, the City, within the limits of its jurisdiction, is able to take measures to improve air quality over its territory;

OZONE DEPLETING CHEMICALS

1. Montréal Strategy for Reducing Emissions and the Use of CFCs and Halons (Public Works and Interdepartmental Working Group on CFCs and Halons):
   - to reduce emissions and non essential uses of chlorofluorocarbons (CFCs) and halons in the city primarily through the use of incentive measures and by encouraging partnerships whenever possible; a brochure was produced to explain the importance of handling refrigerators, freezers and air-conditioners with care in order to avoid the release of CFC gases into the atmosphere;
   - collecting CFCs found in discarded refrigerators and air-conditioners.

CO_2 REDUCTION

2. See transportation policies and land use policies (6-7);
3. anti-idling policy for City employees using City vehicles.

ALTERNATIVE FUELS

4. A pilot study was done for the City's fleet using propane and natural gas instead of fossil fuels.

OTHER

Air quality in buildings: study on ventilation bylaw in City buildings to ensure air quality for City employees, done with both private and public partners. Montréal is looking into ways of improving air quality in office buildings.

EVALUATION

Success: Too early to say.

Problems: The anti-idling policy is difficult to implement because it implies a change in people's habits.

Monitoring: Varies with the strategies; monitoring recovery of CFCs is done; each department is responsible for its own monitoring.

8.3 WATER QUALITY AND CONSERVATION POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Water Conservation	X			1
General Water Quality	X			2, 3, 4
Drinking Water Quality	X			1, 5
Wastewater Treatment Upgrading	X			3
Protection of Groundwater Supplies	N/A			

WATER CONSERVATION

1. Participation by the City of Montréal in an annual Clean Water Campaign to reduce water consumption, especially the watering of lawns.

WATER QUALITY

2. Master Plan for managing snow; includes alternative modes of snow disposal as well as research on new processes to melt snow and improve the use of salt; the City will respect the policy statement from the Ministry of the Environment which bans dumping snow in the River by 1996.[20]
3. the City is working with the engineering school of the Université de Montreal to find alternative water treatment processes and alternatives to dumping snow into the river;
4. using aquatic plants to filter water, done on one of the beaches of Notre Dame Island; the advantages of this method are: economy of energy, minimal cost of infrastructure.
5. Master Plan for potable water.

8.4 SOLID WASTE POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES †
	present	implicit	absent	
Waste Reduction	X			I
Recycling	X			I & II
Alternatives to Disposal	X			I & II

† Waste reduction, diversion, and recycling are closely linked. Therefore, they have not been separated into different categories.

WASTE MANAGEMENT PLAN

The City has proposed a management plan for solid waste.[21] The City's objective is to have 82 percent of its waste recycled, composted or otherwise diverted from landfill by 2010. The following policies, programs and strategies come from the document mentioned.

The City recognizes the social and environmental importance of waste reduction;

- new partnerships will be established with the private sector to implement and manage waste collection and to build an effective waste treatment infrastructure;
- the participation of citizens groups in the setting of objectives for waste management;
- cooperation with other municipalities on the island of Montréal for common solutions;
- coordinated policy with other levels of governments to harmonize policies;

Montreal has been recycling for two years, including paper, cardboard, glass, plastic and metal. The number of residents living in areas served by curbside collection has doubled to 34,000 by September 1991. In addition, there are 71 drop-off sites for recyclable garbage at various spots throughout the city. Another fifty of these sites were to be set up by September 1991.[22]

SUMMARY OF PROPOSED PROGRAMS IN WASTE THE MANAGEMENT PLAN

I WASTE REDUCTION AT SOURCE AND REUSE

- Composting is an excellent way to reduce the quantity of city garbage, and at the same time, to recycle organic material and produce a natural garden fertilizer. Since 1989, Montreal has been collecting leaves from parks and roadsides and

using them as compost in its gardens. As part of a pilot project, Montreal will give out compost bins to more than 3,000 households;
- reduction program for waste generated by industries and businesses; the City will publish a business guide for waste management.

II RECYCLING AND COMPOSTING

- To bring recycling to all residences through curbside collection or designated deposits throughout Montreal by 1994;
- to experiment with different collection techniques for multiple-unit buildings; and to modify the City regulations accordingly;
- to replace one of the weekly garbage collections with a Blue Box collection of recyclable materials before 1995;
- to implement "green" garbage (fruits and vegetables) collection before 1994;
- to continue to collect Christmas trees; started in 1991, these trees provided 170 metric tonnes of wood chips that are now used as mulch in municipal gardens;
- provide information to citizens regarding the special collection service for "cumbersome" waste e.g., furniture, household appliances, waste generated by construction;
- evaluate the collection of the "cumbersome" waste program;
- starting in 1995, prohibit the landfilling of industrial, commercial and institutional waste containing more than 30 percent of recyclable material (paper, cardboard, wood, glass and metal);
- annual recognition for the business that has contributed the most to the objectives of reduction, reuse, recovery, and recycling;
- nearly all the paper used by the City contains recycled materials; the City also uses recycled tires to make protective collars for its trees (to prevent damage from snowploughs in winter) and door mats for its municipal buildings;
- as early as 1994, to collect "green" waste from the food sector (i.e., grocery stores) for composting;
- to plan, in cooperation with restaurants and hotels, the implementation of a composting program for organic waste;
- implement before 1994 a compost treatment plant for the waste mentioned in points 11 and 12 and to ; make this centre accessible to the public;
- raise awareness of the potential for solid waste reduction among health and educational institutions, as well as providing them with support to implement a recycling program;
- ensure blue box collection for institutions before 1994;
- to limit institutions to six containers for regular solid waste collection starting in 1994;
- recycle construction, demolition and renovation waste;
- cooperate with the Ministry of the Environment and the Société Recyc-Québec to find solutions for the recycling of used tires;

- starting in 1994, make each City department pay for the costs of waste treatment and elimination;
- revise municipal jurisdiction to facilitate the location of waste treatment plants on City territory; encourage the private sector to implement a centre for sorting and recycling of construction, renovation and demolition waste;
- build six new solid waste treatment plants within Montréal;
- adopt the best environmental control technology for the incinerator; create a monitoring committee (to include citizens, experts, City and Ministry of the Environment officials) for the incinerator; make it more accessible to the public; produce an annual report to relay data related to the incinerator;
- improve the of the landfill site by making sure that new rules are followed; refuse material that can be diverted from landfill; promote an association with other municipalities on the island of Montréal to implement a regional landfill site; create a monitoring committee (made of citizens, experts, the City and the Ministry of the Environment) for the landfill site;
- produce an annual report on the functioning of the landfill site;
- make the landfill site more accessible to the public.
- expand the city purchasing policy to include a larger number of recycled products;
- analyze the market for different categories as well as quality of products;
- inform the users regarding the quality of different composts and their possible uses;
- promote the use of compost at the municipal level;
- promote research on new products.

EVALUATION

Monitoring: Too early to say in most cases; done for some of the selective sorting; will be eventually done for all programs; for example, it proposed to evaluate the program on "cumbersome" waste.

Problems: The city must be given new powers in order to implement many of these programs.

8.5 HAZARDOUS WASTE POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Waste Reduction	X			
Alternatives to Disposal	X			1, 2, 3
Recycling	X			4

HAZARDOUS WASTE

1. The City will create a data base on dangerous substances to ensure that priorities will be established for hazardous waste management;
2. will define, with professional health associations and the Ministry of the Environment, the practices to be used for the management of biomedical waste;
3. will create a response unit for chemical hazards and answer calls regarding dangerous products;
4. will create, in association with other municipalities, a regional system with mobile collection of hazardous waste combined with a sorting and recycling centre.

OTHER

The City will establish control mechanisms in centres for elimination of sanitary waste so they accept only biomedical waste that is non-anatomical and non-infectious. The City will ensure that people working with hazardous waste are well informed of the risks related to the manipulation of these waste and implement a risk management program adapted to the population working or living close to waste centres.

EVALUATION

Success: Too early to say; the recommendations of the waste management plan have yet to be approved; however, the blue box collection for houses is working.

Monitoring: Is done for waste management strategies that have been adopted by Council.

8.6 LAND USE POLICIES AND PROGRAMS

SUBJECT AREA		OBJECTIVES			POLICY & PROGRAM NOTES
		present	implicit	absent	
Protection of agricultural land		X			1
Natural Areas	Protection of Biodiversity	X			2
	Ecosystem approach		X		3
	Naturalization	X			4
	Urban forest	X			5
	Natural Areas (including Environmentally Sensitive Areas)	X			2, 6
	Greenway System/Open Spaces	X			6
	Land Rehabilitation	X			7

AGRICULTURAL LANDS

1. Advocates of intensification as a preferred solution to continued sprawl development.

BIODIVERSITY

2. Elaboration of a program for the ecological management of parks in the Montréal urban community by the Department of Recreation and Community Development and of the Research Institute on Plant Biology.

ECOSYSTEM APPROACH

3. The Waste Management Plan was elaborated with consideration for the entire metropolitan region. A study on environmental indicators in the framework of the project: "Vivre Montréal".

NATURALIZATION

4. Reduction of pesticide and fertilizer use throughout Montreal; naturalization of the Expo '67 site on the south side of Ste-Hélène island to create an urban park on a sustainable urban development urban theme; renaturalization of the St-Lawrence River shores. The City has opened a beach close to the downtown area. The City is greening its Greenway system by planting native species.

URBAN FOREST

5. The City wants to increase the number of trees and green spaces on its territory. The Botanical Garden of Montréal has the mandate to ensure the maintenance and survival of trees in the downtown and to produce trees that will resist urban conditions. Each year, the City plants 10,000 trees.

OPEN SPACES

6. One of the objectives of the Master Plan of Open Spaces developed by Housing and Urban Development is to ensure an equitable distribution of green spaces among the City's neighbourhoods. The plan also proposes to ensure an adequate amount of open space and a quality landscape in new developments. The Greenway System Master Plan suggests a network of recreational paths (linear parks) linking green and blue spaces (water) in the neighbourhoods they cross. The Greenway System uses public vacant spaces, institutional and community networks, hydro and railway rights of way and links them together. Canadian Pacific accepted to collaborate to a project allowing the use of railway right-of-way for the development of the paths network; a Master Plan for Mont-Royal; a Master Plan for shoreline improvement.

LAND REHABILITATION

7. Task Force on the rehabilitation of contaminated soils (in progress).

EVALUATION

Monitoring: Done for the number of trees planted; other programs are new and no monitoring systems have been developed.

8.7 ENERGY AND TRANSPORTATION POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Intensification	X			1
Public Transit	X			2, 3, 4, 5
Reduce Car use	X			6
Cycling	X			7
Residential Energy Use	X			8-9
Commercial/Industrial Use	X			10-13

INTENSIFICATION

1. General strategies are included in the City Plan to assist in achieving this objective: preferential treatment for public transportation, policies favouring both increased densities and a mixture of urban activities throughout the city;[23] to maintain a high housing density and at the same time, to maintain the integrity of neighbourhoods.

PUBLIC TRANSIT

2. Promote public transit; ensure its regularity; elaborate a plan for implementing programs in different districts of the City;
3. the City has opened a reserved lane for rush-hour buses on a major north-south access route in the heart of the city;
4. commuter parking lots are another way of encouraging drivers to use public transportation; two parking lots have been built at the end of the subway lines in the east and north-west ends of the city; drivers may park their cars at the city's extremities and take public transportation downtown;
5. Master Plan for parking and for subways, suburb trains, and reserved lanes.

REDUCE CAR USE

6. A new parking policy will help reduce car use at peak hours respecting the need for parking space for business. The city is in the process of drawing up a parking policy, which will stipulate specific long-term measures to reduce car use, some of which are already in place; for example, on some streets where parking is a problem, residents get priority over non-residents.

CYCLING

7. Master Plan for cycling paths; a 130-kilometre network of bicycle paths covering the whole city; a ferryboat links Montréal's paths with those of the communities on the south shore of the St-Lawrence.

ENERGY USE/RESIDENTIAL

8. Propose siting of buildings to best exploit the area's passive solar energy potential;
9. work to renovate residences to reduce energy consumption.

ENERGY USE/ COMMERCIAL

10. An industrial commissioner was hired by the City to help businesses to reduce energy consumption;
11. education campaign for City employees to change their energy consumption habits and to ensure their comfort while respecting the environment;
12. policy for street lighting on public roads; ensure energy savings by reducing the number of lamps;
    improving lighting on sidewalks and laneways, and standardizing of the street lighting; to reduce maintenance costs;
13. conversion of street lights; replacement of 45,000 street lights from mercury to high pressure sodium (a reduction of energy consumption and a 19 percent increase in lighting level). According to the estimates, the total cost of this conversion will be recouped by the City in seven years through energy savings.

EVALUATION

Monitoring: Monitoring mechanisms are just starting to be developed.

8.8 ENVIRONMENTAL IMPACT ASSESSMENT

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Environmental Impact Assessment		X		1, 2
Cumulative Impacts			X	

1. A Charter on Sustainable Development[24] has been developed by the City and the Montreal urban community. One of the charter's recommendations is to integrate environmental impact assessment in project evaluation:
   - by adopting and respecting environmental standards that integrate sustainable development;
   - by taking into account the environmental impact of projects.

2. A *Guide for Impacts Identification* has been produced which facilitates the analysis of all initiatives from the initial conception phase of the project, and allows the identification of impacts and administrative issues linked to all aspects of the project.

9 SHERBROOKE

9.1 General Picture

The population of the City of Sherbrooke is 76,429; the area covered by the city is 56.96 square kilometres. In 1960, Sherbrooke was the first city in Quebec to implement a general development plan; a second plan was undertaken in 1988, and in 1990, the new town planning concept was adopted by the City. Among the various objectives laid out in the plan are:[25]

- Sherbrooke will continue to get involved in environmental projects associated with the "Villes en santé" (Healthy Cities) approach, since it is an excellent way to reach out to partners and a useful tool for making people aware of the major components of their environment and lifestyle.[26]
- Since it is impossible to isolate the environment as a phenomenon, any action taken in this regard must be global in nature; therefore, rather than working alone, the City would tend to favour an approach based on the cooperation of all partners.

In the realm of environment, the City has established priority for its activities:

1. Cleaning up the two waterways in the urban area and rehabilitating the shoreline; this operation is proceeding in accordance with an established agenda.
2. Integrated wastes management, a new concept, has become very important. Snow collection sites are also being scrutinized.
3. In the years to come, protection of the urban forest and the use of pesticides will become the focus of attention in the environmental field.

The City of Sherbrooke has adopted two main environmental strategies:

1. Where shared powers exist, draw up a municipal policy on environment; find out where the City's jurisdiction and implementation powers lie; reorganize municipal structures and means of action. At present, the environmental responsibilities of municipalities are poorly defined. Before going any further, the City will attempt to ascertain what its duties and powers are in this field, and, if need be, will adopt the requisite regulation to adequately address this subject.[27]

2. The second strategy is aimed at developing coherence between the various environmental initiatives so that they do not develop independently; this means reorganizing municipal structures to control general activities, as well as applying rules and punishing offenders.

9.2 AIR QUALITY POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Ozone Depleting Chemicals (ODCs)	X			1
CO_2 and Other Greenhouse Gases (e.g., Methane)	X			2-8
NO_2	X			2-8
SO_2	X			2-8
Use of Alternative Fuels			X	

The City has set up very general policies which have not as yet been translated into specific programs.

OZONE DEPLETING CHEMICALS (ODCs)

1. Recovering and recycling CFCs following Toronto's model. The City's Purchasing Services has attempted to ensure that all products purchased are environmentally safe. The bylaw on CFCs has not yet been implemented.

GENERAL AIR QUALITY

2. Bring pressure to bear upon neighbouring municipalities whose factories lower air quality;
3. encourage mass transit;
4. develop a municipal technical assistance program for the reduction at source of industrial pollutants, by setting up small and medium-sized plants to clean up industrial wastes;
5. rigorously apply the bylaws governing emission standards for vehicles in the municipal fleet and encourage local manufacturers to do likewise;
6. develop a town-planning model priorizing energy savings and the reduction of emission sources that might adversely affect air quality;
7. make use of the City's powers to expose external polluters by means of official letters and reports and demonstrate that both the City and its population are concerned about environmental degradation;
8. undertake various steps in response to any new environmental situation which might, directly or indirectly, have an impact on the city.

EVALUATION

Success: No programs to evaluate

Monitoring: Since this plan deals mainly with policies, rather than with programs or strategies, it is difficult to assess their implementation.

9.3 WATER QUALITY AND CONSERVATION POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Water Conservation	X			1, 2
General Water Quality	X			3, 4, 5
Drinking Water Quality	X			6, 7, 8
Wastewater Treatment Upgrading	X			9
Protection of Groundwater Supplies	N/A			

WATER CONSERVATION

1. The City will be more aggressive in attempting to reduce the wastes of residential water by installing meters;
2. meters have already been installed in some residences, along with various plants and businesses.

GENERAL QUALITY OF WATER

3. Ensure that over the medium term, Engineering and Environment Services study potential sources of contamination and examine possible solutions;
4. the City has adopted a policy on snow: to be managed under the waste water management plan; to use the least salt and chemically binding elements possible, using instead gravel, which is then removed early in spring; regularly collect samples, thus allowing for better control, and have a corrective plan for each site, should contamination occur; it is henceforth prohibited to dump snow in waterways;
5. C.H.A.R.M.E., a para-municipal organization (Comité d'aménagement des rives des rivières Magog et St. Francois), is the watchdog for water quality in these waterways.

DRINKING WATER

6. Organize a promotional campaign on drinking water, co-ordinated by the Communications Services, in order to reduce wastes and make the population aware of the quality of its drinking water;
7. increase monitoring of possible sources of contamination of water intakes;
8. the City is now working with U.S. municipalities around Lake Memphremagog, a major source of the city's drinking water supply, in order to reach agreements in principle.

WASTE WATER TREATMENT UPGRADING

9. At present, 70 percent of the sewer system is combined, that is to say, one conduit takes in household waste water and storm water. However, a waste water treatment program was set up in the early 1970s and the City provided for treatment of domestic waste water by sending it to the Greater Sherbrooke Board's water treatment plant, which should start operating in June 1991. However, Sherbrooke will have to get better control over the spillage of its combined sewer system, which overflows directly into the rivers when the snow melts or in periods of heavy rainfall.

EVALUATION

Success: Management of waste snow; cleaning-up of waste water, even though the present set-up requires some improvement.

Problems: there is some resistance on the part of business, industry and residents as to the use of meters.

Monitoring: Financial statements are prepared, especially for the cost of programs; tests on waste water and snow are conducted by the City and by the Ministry of the Environment.

9.4 SOLID WASTE POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Waste Reduction	X			1, 2
Recycling	X			3-6
Alternatives to Disposal	X			6

REDUCTION

1. Ascertain the volumes of recoverable leaves and grass and find out whether any industry would be interested in composting for farm or sugarbush use, etc;
2. the City has undertaken a program entitled "le travail au vert" (working green) to environmentally improve some of its practices, such as using recycled paper.

RECYCLING

3. Aim at 40 percent recovery by means of public awareness campaigns and by encouraging individual participation;
4. public information on recycling;
5. draw up a list of credible and reliable recovery businesses;
6. set up a sorting centre in order to redistribute recyclable material and propose that neighbouring towns share in the program in order to justify the centre's creation.

EVALUATION

Success: Leaf composting has enjoyed tremendous success due to an excellent information campaign and to the partnership between the City and private business; Cascade Corporation manufactured biodegradable paper bags and Provigo (stores) sold them at a cost lower than plastic bags.

Another highly successful program is selective pickup of household wastes; the public responded strongly and a high tonnage of material was recycled. Some drugstores have started collecting pharmaceutical products.

Problems: There are problems associated with the collection of household wastes; for instance, volume: neighbouring municipalities used storage bins at the city's perimeter and they often were full. In addition, the intermunicipal board is not functioning well at this time, since the various municipalities are not used to working together.

Monitoring: This is being done for leaf composting.

9.5 HAZARDOUS WASTES POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Waste Reduction	X			1
Recycling			X	
Alternatives to Disposal	X			2-5

REDUCTION

1. Annual collection of hazardous household wastes (paint, solvent, etc).

ALTERNATIVES TO DISPOSAL

2. Complete inventory of present and potential sites of hazardous wastes;
3. encourage the concept of a regional transfer centre which might better respond to the needs and expectations of the region;
4. until this centre is created, have one or two professional collections a year of hazardous wastes;
5. develop a control program for the production, storage and elimination of hazardous wastes and develop municipal bylaws on the matter, providing for a penalty system for offenders.

OTHER

Biomedical wastes: extend the mandate of the Public Hygiene municipal inspection division so that they may inspect establishments which generate biomedical wastes; draw up an inventory of dangerous situations for each of the establishments with a view to correcting these situations; adopt a municipal management plan in this area, and force establishments to sterilize wastes before disposal. Radioactive wastes: the City intends to prohibit the elimination of radioactive wastes in sewers or any other method that might release this waste into the environment; ensure that each user has an efficient plan to transport, handle and eliminate radioactive wastes; involve a regional supervision and examination committee. Accept the use of radioisotopes in city areas on the condition that an annual inspection takes place. PCBs: make regular checks to ensure that PCBs are stored in accordance with Quebec Ministry of the Environment policy; conduct research on non-polluting substitutes to PCBs and encourage their use.

EVALUATION

Success: The collection of hazardous household wastes was very successful and has become a twice-yearly event; the key to its success, as in the composting of leaves, is due to a successful partnership between the University of Sherbrooke and outside consultants used for the transportation and elimination of this type of wastes.

Problems: The inventory of sites is still in a preliminary stage; the hazardous wastes transfer centre has not yet been set up; the hazardous wastes bylaw does not yet exist; PCB warehouses are supervised.
Monitoring: The transportation of dangerous wastes is supervised, as are cost, use and implementation. The University of Sherbrooke provides City Council with a report.

9.6 LAND USE POLICIES AND PROGRAMS

SUBJECT AREA		OBJECTIVES			POLICY & PROGRAM NOTES
		present	implicit	absent	
Protection of agricultural land				X	
Natural Areas	Protection of Biodiversity			X	1
	Ecosystem Approach			X	
	Naturalization	X			2-7
	Urban Forest	X			8
	Natural Areas (including Environmentally Sensitive Areas)	X			9
	Greenway System/Open Spaces	X			10
	Land Rehabilitation	X			11

BIODIVERSITY

1. No special policy; some action to protect genetic diversity, such as rehabilitating the riverbanks and respecting natural processes at work in the parks.

NATURALIZATION/BANNING PESTICIDES

2. Develop ecological control plans by decreasing artificial habitats such as pigeon netting, replacing them with innocuous repellents (naphtha) or mockups of predatory birds;
3. ban the use of pesticides in the City's parks and green areas and along the waterfront, using instead ecologically safe alternatives;
4. develop municipal bylaws on domestic and commercial use of pesticides, to go into effect once the Province has adopted appropriate rules and regulations;
5. make the population aware of the risks of pesticide use and promote alternative solutions;
6. oblige sales outlets to post a warning on the risks associated with overuse of pesticides;
7. the Parks Department wants to respect natural processes at work in the parks; along the St.Francis River, a park will be allowed to flood in order to protect wildfowl habitat as well as that of other indigenous wildlife.

URBAN FOREST

8. The City has adopted various measures in order to protect the urban forest: a qualitative and quantitative survey of trees and wooded areas on both public and private property; a management framework for tree planting and maintenance, with an appropriate budget; planting is done jointly by the City and its residents; oblige all builders to spend one percent of their budget on planting and maintaining trees on newly-built land; create a green belt around polluting industries by the summer of 1992, especially where the industries are located in densely-populated areas; establish a program to fight against Dutch Elm Disease; establish clear protocols with different organizations in order to manage some wooded areas for educational and recreational purposes; encourage and support the population in planting and protecting trees, especially the young, by using awareness models such as those used by the 4-H; for any project involving the removal of trees, post a notice on site explaining the relevance of the work to be done.

NATURAL AREA PROTECTION

9. Certain wetlands have been zoned so that no development can take place; they are a natural water purifier, and the resident wildlife must also be protected.

URBAN PARKS/GREENWAY SYSTEMS

10. Change zoning bylaws in order to turn into parks the various parcels of land that the City owns and that are already parks or might become green spaces; identify and set aside land to be transformed into parkland in new subdivisions.

LAND REHABILITATION

11. Clean up the banks of the Magog River and once the water treatment plant is operational, priorize rehabilitating the banks of the St. Francis River, so as to strengthen the green corridor in the City. (C.H.A.R.M.E.)

EVALUATION

Success: Elimination of pesticides from all areas, starting in 1989; the bylaw was adopted, but on private land, the owners do not have to state that they are using pesticides. This example illustrates the need for a clarification of the City's authority in matters related to the environment. Tree planting has been successful because of close co-operation between the City and its residents.

Problems: It seems difficult to preserve woodlands because of divergent interests between municipal sectors; the population needs to be better informed of the value of naturally wooded areas.

Monitoring: The Parks Department is responsible for the implementation and compliance of naturalization policies in parks.

9.7 ENERGY AND TRANSPORTATION POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Intensification	X			1, 2, 3
Public Transit	X			4
Reduce Car use	X			5, 6, 7
Cycling and Walking	X			8, 9, 10
Residential Energy Use	X			11
Commercial/Industrial Use			X	

INTENSIFICATION

1. Encourage high-density zones around low-density ones rather than the opposite in order to foster mass transit and halt energy losses;
2. by means of intermunicipal agreements, develop a regional co-operation policy in order to strengthen the urban fabric and fill waste spaces in an orderly manner;
3. encourage municipalities to promote development on the perimeter of the City of Sherbrooke.

PUBLIC TRANSIT

4. Public awareness campaign.

REDUCE CAR USE

5. Fully utilize the regional railway infrastructure for urban, recreational and transportation purposes;
6. better urban planning to encourage the use of other means of transportation over distances shorter than 5 km;
7. review the parking policy for heavily-used parts of the city.

PEDESTRIAN AND BICYCLE PATH NETWORK

8. Develop and use a pedestrian network;
9. develop a more complete and more efficient bicycle path network throughout the city;
10. improve and develop sidewalks, passageways and pedestrian crossings.

RESIDENTIAL ENERGY CONSERVATION PROGRAMS

11. Dual energy program: oil or gas and electricity; a survey of residential electricity consumption (with Hydro Québec);eg., consumers who use less electricity are rewarded with free, high efficiency lightbulbs.

EVALUATION

Success: The dual energy program was successful when the costs of other types of energy were lower than that of electricity; now that costs are approximately equal, the program is less popular. It is, as yet, too early to draw conclusions on the other programs.

Monitoring: A tab is kept on the use made of mass transit; there has been a slight increase in the rate of use over the last three to four years.

9.8 ENVIRONMENTAL IMPACT ASSESSMENT

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Environmental Impact Assessment			X	1
Cumulative Impacts			X	

ENVIRONMENTAL IMPACT ASSESSMENT

1. There are no strictly municipal measures. The Province is responsible for this matter.

10 FREDERICTON

10.1 General Picture

Fredericton's population is 46,466 and its land area 129.58 square kilometres. The vision espoused in the draft City of Fredericton Capital City Municipal Plan is that Fredericton will be a liveable city with a small town ambience.[28] The growth strategy goals include protecting and enhancing the integrity of the natural environment and ensure a quality living environment by maintaining high standards of community planning and urban design.

There are programs to protect the quality of water in the St. John River and other water bodies in the city; providing adequate sewage treatment facilities; implementing adequate storm water management practices; protecting shoreland areas and implementing setbacks requirements for development; seeking snow removal dump sites which avoid the St. John River and other environmentally sensitive areas.

Although the Province establishes standards and policy directions, waste management is assumed to be a local responsibility undertaken through a regional solid waste commission. The City's Blue Box Program has been one initiative taken to reduce solid waste at the landfill. The Province is responsible for the management of hazardous waste. A Household Hazardous Waste Day was organized by the Department of the Environment, but was very expensive and has not been repeated.

The City wants to limit development in all environmentally sensitive areas including river banks and ravines. No formal policy exists against the use of pesticide, but the City is more conscious of the problems related to pesticide application. The City is also pursuing the development of a Greenway System.

Fredericton also wants to concentrate new growth in adequately serviced and properly planned areas; encouraging infill development of under-utilized lands; discouraging development in physically unsuitable areas or ESAs. The City is considering improvements to the transit system as well as a network of pedestrian and bicycle facilities throughout the city and along the river.

There are no provisions for environmental assessment process in the plan but projects must conform to provincial requirements and with open space zoning where applicable.

10.2 AIR QUALITY POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Ozone Depleting Chemicals (ODCs)			X	
CO_2 and Other Greenhouse Gases (e.g., Methane)			X	
NO_2			X	
Use of Alternative Fuels			X	

The Department of Health and Community Services and the Department of the Environment of the Province of New Brunswick are both responsible for various aspects of air quality.

GENERAL POLICY

Council shall discourage the development of industry and other land uses in the City and region that generate emissions with deleterious impacts on the quality of air.

EVALUATION

Success: Cannot be evaluated.

10.3 WATER QUALITY AND CONSERVATION POLICIES

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Water Conservation			X	
General Water Quality	X			1, 2
Drinking Water Quality	X			3
Wastewater Treatment Upgrading	X			4
Protection of Groundwater Supplies	X			5

WATER QUALITY

1. Protect quality of water in the St. John River and other water bodies in the city by: providing adequate sewage treatment facilities; implementing adequate storm water management practices; protect shoreland areas and implement setback requirements for development; regulate pits and quarries in shoreland areas; ensure that industry and other incompatible uses have minimal environmental impacts on any water course; encourage uses that are within the environmental capacity of the river or other water bodies; investigate methods to regulate the commercial removal of topsoil in shoreland areas;
2. seek snow removal dump sites that avoid the St. John River and other Environmentally Sensitive Areas.

DRINKING WATER

3. Implement measures to protect the city's domestic water supply.

WASTE WATER TREATMENT UPGRADING

4. The Fredericton Pollution Control Commission ensures among other things that the sludge from the treatment plant located on the north side of the river does not go in the river.

GROUNDWATER SUPPLIES

5. Seek remedial solutions to address existing ground water environmental problems; encourage the Provincial Departments of Health and Community Services and the Department of the Environment to enforce rigorous standards to protect groundwater.

EVALUATION

Success: Cannot be evaluated.

Monitoring: Water quality is monitored by the Engineering Department.

10.4 SOLID WASTE POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Waste Reduction	X			1
Recycling	X			1, 2, 3
Alternatives to Disposal	n/a			1

Waste management is largely regulated by the Province. There is a regional approach to solid waste management in New Brunswick; the City is responsible for the collection but not for the disposal which is the responsibility of the regional solid waste commission.

REDUCTION AND RECYCLING

1. Show leadership and implement programs for the promotion and implementation of environmentally friendly practices regarding the four R's: reduction, reuse, recycling and recovery;
2. promote the development and implementation of an aggressive recycling program with a greater emphasis on the commercial/industrial sectors;
3. encourage the development of markets for recycled goods and materials.

EVALUATION

Success: Collection of Christmas trees is successful.

Problems: Contamination of Blue Boxes (non-recyclable material placed in boxes). Stable markets are a major problem; in some cases, the public's willingness to participate has outstripped viable markets for material collected. In terms of capacity, participation rate is currently about 25 percent; the City has the capacity to collect more than it does.

Monitoring: The Region monitors the amount of garbage collected (tonnage) with the City Engineering Department.

10.5 HAZARDOUS WASTE POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Waste Reduction	X			1
Recycling			X	
Alternatives to Disposal	X			1, 2

The Province is responsible for hazardous waste.

ALTERNATIVES TO DISPOSAL

1. A Household Hazardous Day was done two years ago by the Department of the Environment; the response was very good but quite costly;
2. citizens bring their containers (flammables) to the Fire Department instead of discarding them.

OTHER

Council shall require development proposals involving hazardous materials or waste to: be adequately separated from ESAs, residential uses or other public facilities; incorporate rigorous storage and operational standards pursuant to the National Building Code, provincial standards and any additional conditions as deemed necessary by Council. Hazardous lands: permit the reuse of former disposal or industrial sites for alternate uses only upon determination that such use will not result in a health risk due to contamination or methane gas.

EVALUATION

Success: Cannot be evaluated yet.
Monitoring: Done by the Province in cases mentioned.

10.6 LAND USE POLICIES AND PROGRAMS

SUBJECT AREA		OBJECTIVES			POLICY & PROGRAM NOTES
		present	implicit	absent	
Protection of agricultural land		N/A			
Natural Areas	Protection of Biodiversity			X	
	Ecosystem Approach			X	
	Naturalization	X			1
	Urban Forest	X			2
	Natural Areas (Environmentally Sensitive Areas)	X		X	3, 4, 5
	Greenway System/Open Spaces	X			6
	Land Rehabilitation			X	

NATURALIZATION

1. Park naturalization is becoming a practice; elms have been saved from the spread of Dutch Elm disease by the City of Fredericton Tree Commission; no formal policy exists against the use of pesticide, but the City is more conscious of the problems related to pesticide application.

URBAN FOREST

2. Fredericton Tree Commission.

NATURAL AREAS/ENVIRONMENTALLY SENSITIVE AREAS

3. Undertake measures to protect and enhance the visual qualities of the city by encouraging and requiring when possible: the preservation of natural features with particular attention to trees, shorelands and stream valleys; the planting and maintenance of trees and green areas along streets and public open spaces; the provision of green spaces and buffering in association with development;
4. protect and limit development in all ESAs including: river banks and ravines; areas with flooding risks; areas with significant development constraints; other areas of open space value;
5. endeavour to ensure that land uses within and abutting designated open spaces and other environmentally sensitive areas are compatible with and have minimal impacts

on the natural environment.

GREENWAY SYSTEM

6. Actively pursue the development of a linear open space system to provide quality and continuous pedestrian (and bicycling) linkages throughout the City.

10.7 ENERGY AND TRANSPORTATION POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Intensification	X			1
Public Transit	X			2, 3, 4
Reduce Car use		X		
Cycling	X			5
Telecommuting			X	
Residential Energy Use	n/a			6
Commercial/Industrial Use	n/a			

INTENSIFICATION

1. Seek to ensure that growth and development is cost effective and environmentally sound by: concentrating new growth in adequately serviced and properly planned areas; planning for the contiguous expansion of the built-up area; encouraging infill development of under-utilized lands; discouraging development in physically unsuitable or environmentally sensitive areas; limiting development in unserviced areas around the City. A provincial Commission will present a position paper on urban sprawl in the Fall of 1992.

PUBLIC TRANSIT

2. Council shall recognize public transit as an important component of the transportation system and shall seek to provide transit service that is cost effective; is convenient and encourages transit use; serves all major residential areas, primarily and secondary areas and other traffic developments; reduces traffic congestion and the need for road and intersection upgrading; meets the needs of senior citizens, disabled persons and other transit users with special needs;
3. Council shall ensure that new developments are designed in ways that facilitate transit movement and use;
4. Council shall consider improvements to the transit system including the following: installing bus shelters and benches at high volume bus stops; continued promotion of the transit system to the public; continued monitoring of the transit system for necessary adjustments to the transit schedule; integrating inter-urban and urban transit to provide an efficient and convenient system; the establishment of park and ride facilities, with assistance from the provincial government; requiring developers to contribute toward the provision of public transit service and facilities to serve new residential, commercial and other development; road pull-offs or slip-off lanes for transit vehicles at designated stops to minimize traffic disruption on high traffic

arterial collectors.

CYCLING

5. To provide a network of pedestrian and bicycle facilities throughout the city and along the river. A bicycle study has been done.

ENERGY USE

6. Energy policies are not included in the municipal plan.

10.8 ENVIRONMENTAL ASSESSMENT

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Environmental Impact Assessment			X	1
Cumulative Impacts			X	

ENVIRONMENTAL ASSESSMENT

1. The environmental assessment process is conducted by the Provincial Department of the Environment.

OTHER

Power transmission lines: Council shall monitor the impacts of major power transmission lines and facilities and shall establish policies to provide appropriate separation distances with residential areas, hospitals and other land uses.

11 CAVENDISH PLANNING AREA

11.1 General Picture

Prince Edward Island is Canada's smallest province and remains largely a collection of small rural communities. The Resort Municipality of Cavendish (or Cavendish Planning Area) illustrates the case where the planning focus is on the preservation of the environment in an area subject to many tourism and development pressures.

Located in North Central Queens County, the Planning Area contains all or parts of the communities known as Stanley Bridge, Bayview, Hope River, Cavendish and North Rustico. In several ways, the Cavendish Area is at a crossroads. Although it remains a traditional rural agricultural community, it has experienced a dramatic growth in tourism development over the last several decades. The area may also be referred as a community in transition. Exhibiting characteristics similar to other seasonal tourism areas such as New England's Cape Cod and Martha's Vineyard, the planning area experiences a dramatic influx of visitors over a short period of time. It is estimated that approximately 400,000 tourists visit the area during the tourist season. With a permanent population of 256 people, this indicates that the population swells to over 2,000 times its normal level. The land area is 38.04 square kilometres.

These extreme fluctuations and the tourism-related growth have occurred with little guidance; this situation has created the need for a long-term strategy to guide the future development of the area. This strategy forms the central thrust of the Official Plan for the area.

The general purpose of the Official Plan for the Comprehensive Development of the Cavendish Special Planning Area, adopted in 1989, is the attainment of a socially desirable, economically attractive and environmentally sound community and way of life. The plan addresses both the immediate concerns of the community and the long-term growth possibilities. Twelve broad subject areas have been examined and are presented in the plan: land use development, environmentally sensitive areas, water and wastewater management, transportation circulation, agriculture, day-use areas, recreation, architectural and landscape design, signage, tourism industry and national park. The national park encompasses almost 46 percent of total land area within the Planning Area.

In the Planning Area, development has occurred in a relatively uncontrolled fashion. To a great extent, development has until now occurred along Highway 6, creating a pattern of strip development. Accompanying this strip development has been the growth of confusing and unharmonious signage, little or no landscape design, poor architectural design and other accoutrements of a more urbanized streetscape. If allowed to continue, the area may run the risk of degrading its high quality visual landscape.

Sustainable development is a priority for the Resort Municipality which is working with Mount Allison University as one of 6 pilot communities in the Maritime Provinces; this initiative started on July 1992 when a questionnaire was sent to 300 people asking them what they would like to accomplish as a community. The public will play an important role in defining what sustainable development means.

11.2 AIR QUALITY POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Ozone Depleting Chemicals (ODCs)			X	
CO_2 and Other Greenhouse Gases (e.g., Methane)			X	
SO_2			X	
NO_2			X	
Use of Alternative Fuels			X	

Air quality is not a problem yet. The provincial government is responsible for air quality standards.

11.3 WATER QUALITY AND CONSERVATION POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Water Conservation	X			1, 2
General Water Quality	X			2
Drinking Water Quality	X			3
Wastewater Treatment Upgrading	X			4, 5, 6
Protection of Groundwater Supplies	X			7

WATER CONSERVATION

1. Installing water meters for businesses;
2. that the Provincial Regulatory Authorities continue, prior to and during the tourist season, to conduct an intensive water and wastewater sampling and testing program for both central and private commercial systems in the Cavendish Planning Area.

DRINKING WATER QUALITY

3. That, the Cavendish Planning Area for the purpose of well construction will require that, prior to individual water supply development, a Provincial Well Permit be required.

WASTEWATER TREATMENT UPGRADING

Policies related to sewerage and waterworks in the Cavendish Planning Area are recommended, first, to support the goal of providing safe and environmentally sound wastewater management and water supply for the area, and second, to support planning initiatives, related to development stimulation. The recommended policies are:

4. that the boundaries of the area to be served by the central wastewater and waterworks systems be established on the basis of planned development as identified in the Concept Plan;
5. that all commercial establishments be connected to the central waterworks system, where it is available, and that, where central waterworks are not available, all individual water supplies serving commercial establishments be equipped with point-of-use disinfection devices, and that these devices be operated and maintained by the Central Water Utility;
6. that all commercial establishments be connected to a central sewer system, where service is available, and, alternatively, where the lack of a central sewer system precludes service provision, by on-site services operated and maintained by the utility personnel responsible for the central system operation and maintenance.

PROTECTION OF GROUNDWATER SUPPLIES

7. The Planning Area is almost completely dependent on groundwater resources for its water supplies. In order to maintain groundwater quality and quantity, it is important to identify and protect aquifer recharge areas. Using a buffer zone to permit only suitable development will maximize rain water percolation and minimize possible pollution. Controlling the ratio of permeable to impermeable surfaces will prevent recharge areas from being completely sealed by buildings and roads and will maintain the area's recharge ability.

EVALUATION

Success: Water meters have changed the amount of water used by businesses. The rest of the policies and programs are too new to be evaluated.

Monitoring: Too new to evaluate.

11.4 SOLID WASTE POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Waste Reduction	X			
Alternatives to Disposal	X			
Recycling			X	

OTHER

Policy Statement: to assess the opportunities for garbage collection and disposal. The growth in tourist and business numbers warrants an examination of the needs for garbage collection and disposal. However, waste management is not a top priority on the Island. It is very costly to recycle. The Municipality, is using a newsletter to educate households.

EVALUATION

Success: Does not apply as it is a new initiative and cannot be evaluated.
Monitoring: Does not apply.

11.5 HAZARDOUS WASTE POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Waste Reduction				
Alternatives to Disposal				
Recycling				

Hazardous wastes are a provincial responsibility.

11.6 LAND USE POLICIES AND PROGRAMS

SUBJECT AREA		OBJECTIVES			POLICY & PROGRAM NOTES
		present	implicit	absent	
Protection of agricultural land		X			1-4
Natural Areas	Protection of Biodiversity	X			**5**
	Ecosystem Approach			X	
	Naturalization	X			6
	Urban Forest	X			7, 8, 9
	Natural Areas	X			10-13
	Greenway System	X			14
	Land Rehabilitation			X	

AGRICULTURAL LANDS

The Municipality is working with the Park to protect agricultural lands. There is a need to protect existing farm operations from encroachment and possible opposition from tourism developments.

1. Promote the co-existence of both the agricultural and tourism industries;
2. promote the orderly transfer of land from agriculture to tourism development as market demands dictate;
3. promote sound farming practices that will minimize any harmful effects to the community;
4. sound farming practices may include limiting chemical spray applications or the type of chemical applied; selection of more appropriate time to spread manure; and selection of more appropriate time to move heavy machinery, etc.

BIODIVERSITY

5. Done within the National Park, which is a part of the Resort Municipality; Environment Canada–Parks, in achieving its goal of protecting examples of all Canada's natural regions, has identified the Prince Edward National Park as representative of the southern shoreline of the Gulf of St. Lawrence and part of the larger area identified as the Maritime Plain Region characterized by sandy shorelines, dunes, spits, island environments and other natural features.

NATURALIZATION

6. In the Site Planning Guidelines, the Section on Landscape and Site Treatment explains how natural vegetation should be kept "where natural or existing topographic patterns contribute to beauty and utility of a development, they shall be preserved and developed....Plant materials shall be selected for hardiness and interest in their structure, texture, and colour, and for their ultimate growth. Plants that are indigenous to the area and others that will be hardy, harmonious to the design, and of good appearance shall be used."[29]

URBAN FOREST

7. To promote, where possible, reforestation of selected species. This will add to the diversification of the local tree population. By planting selected species in the Planning Area, it is anticipated aesthetic quality will be increased;
8. to prevent indiscriminate cutting of woodlands;
9. in wooded areas, development should be encouraged that maximizes utilization of all trees and, while minimizing the degradation from cutting.

NATURAL AREAS/ESAs

10. Establish buffer zones in and around environmentally sensitive areas that permit development of only those activities which pose no threat to the natural function of the system it protects. In ESAs, development should be limited to low-intensity uses such as walking and cross country skiing. ESAs can be aquifers, hillsides and steep slopes, coastal areas and woodlands;
11. to prevent wetlands from being destroyed by conversion through draining and filling. Because of the importance of wetlands, only those uses which will not negatively alter the natural system will be permitted. Buffer zones to control development adjacent to wetlands should be established to allow for active use of an area while minimizing any harmful side effects;
12. restrict development activity along the shoreline that is potentially harmful to coastal wetlands;
13. to promote hedgerows where necessary to protect soil and wildlife. Hedgerows provide shelter important for protecting the soil from wind and water. A good thick hedgerow also provides food and protection for wildlife species.

GREENWAY SYSTEM

14. To provide and protect green areas that offer attractive panoramic view of the coastline. Opportunities exist to provide and protect green areas, especially within the National Park. A liaison person from the National Parks should become a participant in future decision-making processes that will impact the Planning Area. Equally important is the representation of private landowners in the decision-making process of Environment Canada-Parks.

OTHER

Development sensitive to the environment: encourage on-site development controls through development agreements. Such on-site controls should include: the smallest practical area of land should be exposed at any one time and only for the shortest practical length of time. The surface of exposed banks should be roughened to decrease run-off and slow downhill movement of soil; the maximum amount of natural vegetation and terrain should be retained, and temporary vegetation or mulching should be used to protect exposed areas; the permanent final vegetation should be planted and the structures should be built as soon as possible; topsoil should be removed only from places intended for structures and resurfacing, then it should be redistributed within the boundaries of the area to provide a better base for new vegetation; the plan for the project should take account of the climate, vegetative cover, topography, and soil to avoid erosion as much as possible; natural waterways and the pattern of natural surface run-off should be preserved without short-circuiting flow to simplify drainage. Natural drainage ordinarily directs run-off through vegetated areas like thick stands of grass, thereby stabilizing flow and helping to filter other pollutants; provisions should be made to accommodate increased run-off caused by changes in the surface during and after construction. Techniques range from the installation of sediment basins to hold storm water, temporarily detain run-off, and allow time for sediment to settle, to building soil or stone dikes, ditches, and terraces, for slowing and directing run-off; ensure that undue pressures created by indiscriminate land mixing is minimized.

EVALUATION

Success: Too early to say.

11.7 ENERGY AND TRANSPORTATION POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Intensification	X			1
Public Transit	N/A			
Reduce Car use	X			2
Cycling	X			2
Residential Energy Use	N/A			
Commercial/Industrial Use	N/A			

INTENSIFICATION

1. To control strip development along the highway. Clustering prevents sprawl and general visual pollution of the area's key natural features; to promote development on smaller lots. The Plan does not include the expansion of its sewer system unless absolutely required.

REDUCE CAR USE/ TRANSPORTATION

2. As a part of the planning process the Joint Planning Board initiated a study to examine issues related to transportation and to determine traffic solutions. Funded through the Federal-provincial Subsidiary Agreement on Planning and Environment Canada-Parks, a transportation study has been completed that examines an integrated transportation system for the movement of vehicles, bicycles and pedestrians in and around the Planning Area. The objectives are:
   - to promote the development of pedestrian walkways, which will link commercial developments throughout the Planning Area. Over time, this should lead to a reduction in the use of automobiles;
   - to promote the development of designated bicycle paths;
   - to provide street lighting to enable safe night time travel;
   - to provide for safer pedestrian crossing conditions.

EVALUATION

Success: Too early to evaluate.
Monitoring: Too early to evaluate.

11.8 ENVIRONMENTAL ASSESSMENT

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Environmental Impact Assessment			X	1
Cumulative Impacts			X	

ENVIRONMENTAL IMPACT ASSESSMENT

1. The plan presents these recommendations: major developments will be screened through a more rigorous Environmental Impact Assessment process, as defined under the *Prince Edward Island Environmental Protection Act.* If a major development is approved, the applicant must enter into a Development Agreement. All developments throughout the Planning Area will be subject to minimum regulations (as per zoning by-laws). Environmental Impact Assessments (EIAs) will be required for all major undertakings. The EIA should begin in the early planning phases of development. Similar to the need for a financial feasibility study, an EIA should become part of the developer's package on which his decisions are based. The complexity of the process should be adjusted to fit the environmental or project complexity. For small developments, i.e. single cottages, houses, barn development, a comprehensive EIA may not be necessary; the present requirements for obtaining a building permit or subdivision approval may suffice. The community should take the lead role in ensuring that EIAs are carried out when necessary. A standing advisory committee should be formed with members of the community, plus expert advisors who can work closely with the Department of Environment.

12 DARTMOUTH

12.1 General Picture

Dartmouth has a population of 67,798 and a land area of 58.57 square kilometres.
The new Municipal Planning Strategy has not yet been approved by Council. Therefore, the 1978 Municipal Planning Strategy, with amendments, remains in effect; most of the policies mentioned are in draft form and are subject to change when a new Municipal Planning Strategy goes to Council.[30]

The planning strategy preserves the vision of Dartmouth as a City of Lakes, makes it affordable to its people and attractive to development, enhances its varied heritage and cultural resources and promotes a balanced and viable economy. [31]

All policies and programs mentioned in this chapter come from the Municipal Planning Strategy unless otherwise indicated.

12.2 AIR QUALITY POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Ozone Depleting Chemicals (ODCs)			X	
CO_2 and Other Greenhouse Gases (e.g., Methane)			X	
SO_2			X	
NO_2			X	
Use of Alternative Fuels			X	

There are no policies on air quality in the Municipal Planning Strategy. Provincial air pollution regulations are enforced.

12.3 WATER QUALITY AND CONSERVATION POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Water Conservation	X			1
General Water Quality	X			2, 3
Drinking Water Quality	X			4
Wastewater Treatment Upgrading	X			5, 6
Protection of Groundwater Supplies	N/A			

WATER CONSERVATION

1. Residential programs exist, but are not an on-going.

GENERAL WATER QUALITY

2. A Lake Advisory Committee works on general water quality, the watershed and development around the Lakes;
3. to direct Engineering and Planning and Development Departments to carry out a lake management program and to provide the necessary funds to include:
   - monitoring for quality and quantity of run-off into waterways;
   - monitoring lake watersheds, and water quality and sedimentation in lakes on a continuing basis.

DRINKING WATER QUALITY

4. To ensure safe standards of water quality appropriate for different usages of the lakes, including a potable water supply. A Conservation Zone is primarily in place to protect drinking water quality.

WASTEWATER TREATMENT

5. To provide an adequate system for the treatment of sewage waste and storm-water run-off in order to minimize environmental degradation;
6. a Harbour Clean Up Program exists; domestic and industrial sewage from Dartmouth is going into the harbour untreated. Several studies completed in the last two years have drawn particular attention to the deterioration of the environmental quality of the harbour. Most Dartmouth residents would like to see the water quality in the harbour improved; It shall be the intention of City Council to strive to prevent the discharge of raw sewage into the harbour; it shall be the intention of the City Council to cooperate with other levels of government and the surrounding municipalities to begin a comprehensive plan to treat raw sewage in the Harbour.

EVALUATION

Success: The Conservation Zone is successful. The Lake Advisory Committee, which includes many volunteers, has been successful in advising City Council on appropriate protective measures for the area watershed. An agreement has been reached to protect the lakes of the area. Bylaws have been recommended by the Advisory Committee.

Problems: The Municipality does not have direct funding to inspect lake protection agreement.

Monitoring: The Advisory Committee does monitoring for the water quality of the lakes. Monitoring of drinking water is done by the Nova Scotia Ministry of the Environment.

12.4 SOLID WASTE POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Waste Reduction	X			
Recycling	X			1, 2
Alternatives to Disposal	X			1, 2

GENERAL POLICY

The City of Dartmouth has taken a leadership role within the Metro Area by undertaking a pilot project involving the curb-side collection of newsprint from residential neighbourhoods. The program will be expanded over the long term to encompass other waste products such as glass, certain forms of plastic, ferrous and non-ferrous metals, rubber, building materials, oil, food waste, yard waste, clothes, and white goods such as washers, dryers and refrigerators. It shall be the intention of City Council to undertake and encourage programs and facilities for the recycling of waste products.

RECYCLING PROGRAMS

1. Christmas Tree Program;
2. composting leaves.

12.5 HAZARDOUS WASTE POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Waste Reduction	X			1
Recycling			X	
Alternatives to Disposal	X			2

WASTE REDUCTION

1. It shall be the intention of City Council, in cooperation with other levels of government, to develop a plan to control the use of toxic materials and the handling, transportation, and disposal of toxic waste covering topics such as: investigating appropriate controls over the use of pesticides, herbicides, and fertilizers within the City; developing controls over the burning of wood fuels in residential areas of the City to ensure resulting emissions do not create a health hazard; preventing deterioration of lake water quality from toxic waste, by the monitoring of storm water run-off into the lakes; encouraging the removal of lead-based paints from dwellings and prohibiting the burning of painted wood, because of the danger of lead contamination from both these sources; developing a plan for the collection and safe disposal of household and industrial toxic waste; establishing a public education program to acquaint the residents of Dartmouth with these issues;
2. establish a Dangerous Goods and Hazardous Waste Zone in the Land Use Bylaw. This zone shall provide for facilities exclusively for the transfer, storage or treatment of dangerous goods, hazardous waste, and special wastes. Zone requirements and building siting shall be greater than for some other industrial zones to provide for greater separation of facilities from abutting uses and for increased aesthetics. In order to provide a minimum level of protection to abutting uses and increased aesthetics, all uses shall be contained entirely within a building or structure and no outdoor storage shall be permitted. A sign shall be posted on the property indicating the type of activity taking place.

12.6 LAND USE POLICIES AND PROGRAMS

SUBJECT AREA		OBJECTIVES			POLICY & PROGRAM NOTES
		present	implicit	absent	
Protection of agricultural land		N/A			
Natural Areas	Protection of Biodiversity			X	
	Ecosystem Approach			X	
	Naturalization	X			1
	Urban Forest	X			2
	Natural Areas (including Environmentally Sensitive Areas)	X			2-11
	Greenway System/Open Spaces	X		X	12, 13
	Land Rehabilitation			X	

NATURALIZATION

1. Reduces the cost of maintenance; the community is involved in the process; development of wildflowers throughout the City; reduce cultivated flowers on the roadside.

NATURAL AREAS/ENVIRONMENTALLY SENSITIVE AREAS

2. It shall be the intention of City Council to complete an inventory of space, environmentally sensitive areas, and important environmental areas in the city to include them on a map. The open spaces areas shall be in accordance with the definition. The basis for the inventory will be the 1974 Lake Study and the information in the 1987 Recreation Master Plan. The inventory shall be started within twelve months of the final approval of this Municipal Planning Strategy treated on a priority basis and shall be kept current;
3. to recognize the need to provide open space for the future residents of Dartmouth, and initiate an integrated plan for open space. The plan shall include land acquisition for open space purposes, as funds permit;
4. to provide all residents of Dartmouth with ready access to an improved variety of types of open space. The City will therefore initiate a program of land acquisition and preservation to achieve a better balance of open space to people;

5. to establish a Conservation designation on the Generalized Future Land Use Map in order to protect environmentally sensitive areas that are hazardous to development;
6. to establish, in the Land Use By-law, a Conservation and Open Space (COS) Zone within the Conservation designation. The Zone shall be used to protect environmentally sensitive and conservation related areas and in particular lands abutting brooks, streams and runs and passive recreation;
7. to zone environmentally sensitive land Conservation and Open Space. Environmentally sensitive lands will include areas such as land within a specific distance of a watercourse, land that is subject to flooding or subsidence, low lying, marshy, or unstable or is otherwise hazardous for development by virtue of its soil conditions or topography. The Conservation and Open Space Zone shall also be used to protect lands that are environmentally sensitive or important environmental areas in the inventory;
8. to direct the Dartmouth's Lakes Advisory Board to provide a set of criteria for environmentally sensitive areas, and to be actively involved in the inventory;
9. to direct Engineering and Planning and Development Departments to carry out a lake management program and to provide the necessary funds to include:
   - monitoring for quality and quantity of run-off into waterways;
   - monitoring lake watersheds, and water quality and sedimentation in lakes on a continuing basis;
   - implementing aquatic vegetation control program;
   - implementing an aquatic wildlife control;
   - ensuring the provision of adequate buffer zones;
   - prioritizing and implementing lake rehabilitation projects;
   - designing and implementing a public education program;
   - taking necessary steps to correct problems that arise;
10. to make use of conservation zoning, as distinguished from recreational lands, in order to provide protection for the lakes during any development;
11. protection of wetlands and waterfowl habitat; an annual report on the Lakes and the state of the natural environment will be part of a lake management program.

GREENWAY SYSTEM/LINKAGES/WATERFRONT

12. The City's objective is to acquire large parcels of land in order to link green open areas; plan, develop, and maintain a network of trails suitable for jogging, bicycling, walking, and cross-country skiing, linking major park and recreational areas, and other focal points within the city. Special consideration shall be given to linking together the harbourfront areas with inland open space areas;
13. upon any redevelopment of the Canadian National Marshalling Yards on the Downtown Waterfront, to ensure public access to the waterfront is achieved via a linear park/board walk, and an appropriately sized open space linkage is developed between the Canadian National Railroad lands at the waterfront and the lands of the Dartmouth common.

EVALUATION

Success: Park naturalization; too early to say for the other policies and programs.

Problems: If the lakes are to be managed in a more systematic manner, it will be necessary for the City to provide more staff people; although the City has placed restrictions on cutting trees for residential development, it has not been able to control effectively what happens on private land.

Monitoring: City Council will prepare, as part of a lake management program, an annual report on the state of its natural environment, highlighting important changes (both positive and negative) especially as it relates to the Lakes. The annual report shall include how the Lake Management Program is meeting its objectives. The Lake Advisory Committee is still at its infancy stage.

The Recreation Master Plan, written every five years, helps to monitor cost, use, implementation and public support.

12.7 ENERGY AND TRANSPORTATION POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Intensification	X			1, 2, 3
Public Transit	X			4-15
Reduce Car use	X			16
Cycling	X			17, 18, 19
Residential Energy Use	X			20-25
Commercial/Industrial Use	X			26

INTENSIFICATION

1. It shall be the intention of City Council to encourage a compact and contiguous development form in order to discourage urban sprawl, such as "leapfrogging" or ribbon development;
2. to consider land use intensification programs in order to maximize the utilization of existing services, facilities, and infrastructure. Such intensification programs shall be considered as part of the Secondary Planning Process, and shall include extensive community involvement;
3. since 1966, Dartmouth has used the Development Boundary as the primary tool for controlling where new development will occur within its political boundaries. The Development Boundary was based on natural drainage areas, and reflects those areas within the City that could be economically serviced with trunk sewer systems without great expense to the City. Inside the Development Boundary, development could only occur on full central servicing systems (sanitary sewer, water and storm sewer). Outside the boundary, the City's Subdivision Regulations permitted the subdivision of only one lot per year. In order to accommodate on-site servicing, these lots were larger than the normal city lot. Under the 1978 Municipal Planning Strategy, any alteration in the location of the Development Boundary required a Municipal Planning Strategy Amendment, including a public hearing and approval by both City Council and the Minister of Municipal affairs.

PUBLIC TRANSIT

4. It shall be the intention of City Council to encourage continued programs promoting transit ridership, in order to increase the level of usage of public transit;
5. support a system of funding for public transit which is based on residential and work populations within each municipality served by Metro Transit;
6. promote, encourage and enact a policy that will see the establishment of an integrated fare system for transit and the ferries;

7. promote the establishment of an inter-city bus terminal within the city, with links to other provincial centres;
8. encourage the integration of inter-city bus terminals with the public transit system to permit adequate access by public transit users;
9. require, in a new Subdivision Bylaw, at least one bus lane and bus bays for all new arterial and collectors streets. The City shall include a bus lane and bus bays, on any new arterial or collector street and, wherever possible, on any upgraded or re-built existing arterial and collector, constructed by the City.

TRANSIT AND LAND DEVELOPMENT

10. The City shall encourage the location of high density residential developments and commercial/office developments along existing and proposed transit routes, on arterial and collector streets, and on truck routes;
11. encourage the Metropolitan Authority to provide adequate public transit for new large scale residential subdivisions. Within any residential subdivision, the developer should be encouraged to locate multiple unit buildings adjacent, or as close as possible, to existing or planned transit routes. The developer should be encouraged to design the entire subdivision to provide for efficient and viable transit facilities for Metro Transit;
12. ensure that new shopping mall construction or expansion of any existing shopping mall, be required to provide adequate bus lanes, bus bays and shelters to accommodate the projected public transit service required;
13. encourage multiple unit/high density developments include walkways, which provide as direct access as possible to public transit;
14. study and determine the feasibility of implementing a transit dedication fee, whereby developers of new subdivisions, expansions of new subdivisions and commercial/industrial developments provide one-time capital funding to the City to cover the costs of providing public transit to carry the residents or employees thereof. This fee shall also apply to the funding and construction of public and civic buildings such as, but not limited to, libraries, sport complexes and community centres;
15. adopt a bylaw to limit transit routes within the City of Dartmouth to arterials, collectors, and expressways or such local streets as specifically approved by Council.

REDUCE CAR USE

16. It shall be the intention of City Council to encourage the development of mixed-use neighbourhoods, such that the need for frequent or long distance travel (employment) and dependence on the private automobile are reduced. In this regard, Council shall encourage the location of institutional, recreational, and home occupation uses within residential areas. Certain local commercial uses, such as neighbourhood grocery stores (corner stores), medical clinics, and day nurseries shall also be considered in residential areas.

CYCLING

17. It shall be the intention of City Council to prepare and implement a plan establishing

a path network throughout the city. The plan shall give consideration to providing commuter bikeways on existing, new and re-developed streets which would link areas of residential development, major areas of employment, the downtown, the bridges and the ferries. Consideration shall also be given to providing to providing recreational bikepaths within new subdivisions, along the waterfront and other recreational areas;

18. encourage the agencies responsible for the bridges and ferries to provide adequate facilities to accommodate bicycle traffic;
19. encourage new commercial, public and institutional facilities to provide suitable, safe parking accommodations for bicycles and to encourage existing such facilities to provide bicycle accommodations.

RESIDENTIAL ENERGY USE

20. It shall be the intention of City Council to support measures to achieve increased energy efficiency construction in new buildings, retrofitting existing buildings and incorporating energy conservation monitoring and management systems;
21. investigate in cooperation with other Municipalities and senior levels of government, opportunities to implement alternative energy sources. Specific emphasis should be placed on the potential to utilize city-generated solid waste, district heating and cogeneration;
22. encourage and support the energy efficient design and construction of all buildings, according to the standards contained in the National Building Code and its applicable Supplements, including "Measures for Energy Conservation in New Buildings;"
23. encourage energy-efficient residential development and subdivisions that maximize the use of solar energy. One method by which this may be accomplished is through the establishment of a Comprehensive Development District within the Land Use Bylaw;
24. initiate a study to develop legislation for the protection of solar access to buildings and land uses within the City; the purpose of protecting solar access is to prevent development that would create unfavourable shadowing of adjacent buildings.

ALTERNATIVE ENERGY SOURCES FOR PRIVATE USE

25. City Council recognizes both the benefits and problems associated with the use of alternative energy systems for private use, such as wood stoves and heat pumps. It shall be the intention of City Council, in cooperation with the Nova Scotia Department of the Environment, to conduct further study regarding this topic to determine the types of controls required to allow for their use, and to minimize their negative environmental impacts. (For example, the improper location of a heat pump can create a noise problem for abutting land owners).

CITY FLEET

26. Support measures to achieve increased energy efficiency in its fleet operations and in vehicles operated by any Boards or Commissions of the City.

EVALUATION

Success: The Development Boundary has proven to be a successful device in restricting development to areas which can be easily serviced by existing trunk sewer systems, roads, schools, and so on. It has helped the City maintain a degree of control over the timing of new development. For all other programs, it is too early to say.

Problems: It is difficult to increase residential density because people want to live in single-family homes.

Monitoring: Currently, the City of Dartmouth does not have a detailed data base or coordinated monitoring system for its energy use and costs. Without a thorough knowledge of the existing situation, remedial measures are almost impossible.

An Energy Advisory Board should be established to carry out this work. It would compile an energy use and cost database and implement a plan to monitor the City's energy use. The Energy Advisory Board would also be responsible for developing and implementing a plan to increase energy-efficiency city-wide. This Board should comprise representatives from appropriate City departments (Engineering and Works, the School Board) and include internal or external technical and financial expertise. The mandate of the Energy Advisory Board will be to advise Council on maximizing energy efficiency within all City operations.

12.8 ENVIRONMENTAL ASSESSMENT

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Environmental Impact Assessment			X	1
Cumulative Impacts			X	

ENVIRONMENTAL IMPACT ASSESSMENT

1. Not in the existing Municipal Planning Strategy. A responsibility of the Provincial Department of the Environment.

OTHER

Development of adjacent electrical transmission lines: it shall be the intention of City Council, pending the outcome of studies now under way concerning health impacts from major electrical transmission lines, to review all lands within the city affected by such utilities and amend its land use control mechanisms so as to ensure that health risks are minimized.

13 ST. JOHN'S

13.1 General Picture

St. John's has a population of 95,770 and a land area of 101.62 square kilometres.

There is no specific statement on the environment at the beginning of the St John's draft Municipal Plan. Environmental policies are present in different sections of the Plan, e.g., the protection of Environmentally Sensitive Policy Areas, and policies and programs protecting the major tributaries of river systems.[32]

Many areas e.g., air quality, are a provincial responsibility. A few recycling programs exist, such as Christmas tree composting, but there is no Blue Box Program. A Household Hazardous Collection was tried for one year, but the cost was so high that it was not repeated. It is proposed that the City's waterways and associated open spaces shall be planned and managed on a watershed basis with the cooperation of municipal governmental agencies involved.

The Plan calls for the protection of major tributaries of river systems. A study under way will identify all significant waterways and wetlands. An Environmental Advisory Committee has been appointed by Council to review all applications adjacent to waterways and wetlands. There are no special policies for wastewater treatment upgrading and protection of groundwater supplies. Any development in or near ESAs, bodies of water and flood risk areas shall be subjected to a Land Use Impact Assessment and a subsequent Conservation Plan to ensure appropriate development and control of any negative impacts the development may have.

Very general statements encourage intensification by infilling, compact renewal and increasing densities in residential areas. The City wants to promote the transit system and reduce car use, but car use pattern is difficult to change. There are projects for bicycle paths. The City encourages site planning that achieves energy efficiency in buildings.

Land Use Impact Assessment may be required for any significant development. An Environmental Analysis Report is required for any development affecting ESAs or any development that, in the opinion of Council has an impact on the environment.

13.2 AIR QUALITY POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Ozone Depleting Chemicals (ODCs)			X	
CO_2 and Other Greenhouse Gases (e.g., Methane)			X	
NO_2			X	
CO_2			X	

The Provincial Department of the Environment is responsible for air quality. No specific policies in municipal plan.

13.3 WATER QUALITY AND CONSERVATION POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Water Conservation			X	
General Water Quality	X			1
Drinking Water Quality				2
Wastewater Treatment Upgrading			X	
Protection of Groundwater Supplies			X	

WATER QUALITY

1. The municipal plan specifies the protection of major tributaries of river systems. A study under way Significant Waterways and Wetlands of St. John's will identify all significant waterways and wetlands. An Environmental Advisory Committee has been appointed by Council to review all applications adjacent to waterways and wetlands.[33]

DRINKING WATER

2. No special policies. Follows Canada Drinking Water Standards and Guidelines.

Monitoring: None except for drinking water quality.

13.4 SOLID WASTE POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Waste Reduction	X			1, 2
Recycling	X			1, 2, 3
Alternatives to Disposal	X			1, 2

SOLID WASTE

1. A study will be done in conjunction with the municipalities, the Region and the Province;
2. Christmas Tree composting and mulching;
3. St. John's does not have a Blue Box Program.

OTHER

Many volunteer and citizen groups are involved with litter clean-up campaigns or projects.

13.5 HAZARDOUS WASTE POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Waste Reduction	X			1
Recycling			X	
Alternatives to Disposal	X			1

WASTE REDUCTION

1. A 1992 Household Hazardous Waste day organized by the provincial and the federal government, the City, business groups and non-profit groups; the City wants to start an educational program and would like to have a permanent depot operated by a private company.

EVALUATION

Success: The Household Hazardous Waste collection was deemed to be successful but very expensive.

13.6 LAND USE POLICIES AND PROGRAMS

SUBJECT AREA		OBJECTIVES			POLICY & PROGRAM NOTES
		present	implicit	absent	
Protection of agricultural land				X	1
Natural Areas	protection of Biodiversity			X	2
	Ecosystem Approach			X	3
	Naturalization			X	
	Urban Forest		X		4, 5
	Natural Areas (including Environmentally Sensitive Areas)		X		4, 5
	Greenway System/Open Spaces		X		
	Land Rehabilitation			X	

AGRICULTURAL LANDS

1. The Agriculture designation applies to those lands that are considered to have potential for agriculture. Designated areas have been identified in accordance with the Department of Forestry and Agriculture's Agricultural Development Area Guidelines.

BIODIVERSITY

2. Indirectly promoted through the protection of open spaces and wetlands.

ECOSYSTEM APPROACH

3. The approach is mentioned only for watershed development. The City's waterways and associated open spaces shall be planned and managed on a watershed basis with the co-operation of the municipal governmental agencies involved.

ENVIRONMENTALLY SENSITIVE AREAS.ENVIRONMENTALLY VALUABLE AREAS AND NATURAL AREAS[34]

4. The Environmental Advisory Committee ensures that any development in or near ESAs, bodies of water or flood risk areas shall be subjected to a Land Use Impact Assessment and a subsequent Conservation Plan to ensure appropriate development

and control of any negative impacts of development; buffers are open spaces designated by the City to shape and guide urban development, separate incompatible uses, and reduce the impact of land uses incompatible with residential development (highway buffers, residential-commercial buffers, industrial buffers);

5. all lands within not less than 15 m of the 100-year high-water mark of ponds, wetlands or major tributaries of rivers designated under this Plan shall not be developed.

EVALUATION

Success: Difficult to evaluate.

13.7 ENERGY AND TRANSPORTATION POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Intensification	X			1
Public Transit	X			2
Reduce Car use	X			3
Use of alternate fuels			X	
Cycling/walking	X			4
Residential Energy Use	X			5, 6
Commercial/Industrial Use	X			5, 6

INTENSIFICATION

1. Very general statements to encourage infilling; encourage conservation, compact renewal and infill in the older parts of the city; increase densities in residential areas; minimize sprawl by encouraging large-scale integrated development in all expansion areas.

PUBLIC TRANSIT

2. Improve effectiveness of routes serving major traffic generators such as employment centres, educational institutions, shopping areas and recreation centres.

REDUCE CAR USE

3. The City shall provide a greater concentration of interrelated land use functions by: concentrating interrelated functions in commercial nodes and highway corridors; encouraging a compatible mix of land use functions; integrating all basic residential services (shopping, school, recreation and work) on a neighbourhood basis; and encouraging alternatives to the car such as pedestrian and cycle paths, or bus service.

BICYCLING/WALKING

4. Projects for bicycle paths; a walking trail exists in the middle of the City.

RESIDENTIAL ENERGY EFFICIENCY

5. The City shall increase the energy efficiency of buildings by encouraging low-to-medium density multiple dwellings and promoting energy efficiency in buildings, through building control regulations;
6. encourage site planning that achieves heating efficiency in buildings.

EVALUATION

Problems: It is difficult to control basic city and regional sprawl and to change present patterns; urban form could be more compact.

Monitoring: None.

13.8 ENVIRONMENTAL ASSESSMENT

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Environmental Impact Assessment	X			1
Cumulative Impacts			X	

1. Any development in an Environmentally Valuable Area shall be subject to a Land Use Impact Assessment. Land Use Impact assessment is also required for applications that involve the introduction of a Conditional Zone, the development of a shopping centre, an agricultural or forestry use and may be required for any significant development; an Environmental Analysis Report (EAR) is required for any development affecting Environmentally Sensitive Areas (ESAs) or any development that, in the opinion of Council has an impact on the environment. The EAR must include the following: a description of the purpose of the undertaking; a description of and a statement of the rational for the undertaking, alternative methods of carrying out the undertaking and the alternatives to the undertaking; a description of:
   - the environment that will be affected directly or indirectly;
   - the effects that will be caused to the environment;
   - the actions necessary to prevent, change, mitigate or remedy the effects that might reasonably be expected upon the environment by the undertaking;
   - the alternative methods of carrying out the undertaking and the alternatives to the undertaking;
   - an evaluation of the advantages and the disadvantages to the environment of the undertaking, the alternatives methods of carrying out the undertaking and the alternatives to the undertaking.

   Conservation Plan means a plan that identifies the environmental impacts of a development as established by a Land Use Impact Assessment. A Conservation Plan must be submitted prior to the granting of Final Approval for any subdivision and/or development for which an EAR has been prepared. A Conservation Plan Agreement between Council and the applicant shall specify: the contents of the Conservation Plan, applicable development fees, the timing and phasing of the implementation of the Conservation Plan, the duration of the agreement, and any penalties or fines for violation of the agreement.[35]

   The City uses the term "Environmental Analysis Report" rather than "Environmental Impact Statement" because the latter term is used by the Province and implies a different type of evaluation process.

14 WHITEHORSE

14.1 General Picture

The population of Whitehorse is 17,925 and its land area 413.48 square kilometres. The planning goal of the current Whitehorse Official Community Plan adopted in 1987 is "the continued development of Whitehorse as the Capital City of the Yukon Territory with a strong and diversified base, a high level of socio-economic and community services, and a living environment of high standard. One of the general community development objectives is: "to protect and enhance the outstanding and fragile northern environment in the City and to encourage good management of the built environment." The Community Plan will be reviewed in 1992-1993.[36]

Some of the general community development objectives of the existing plan are:

1. Quality of Life: to improve municipal services as appropriate and required in both urban and rural areas of the City, and to accommodate the preferred lifestyles of citizens while recognizing the resources of the Municipality.
2. The protection of the natural environment: to protect and enhance the outstanding and fragile northern environment in the City and to encourage good management of the built environment.

There are no specific policies for air quality other than the Wood Smoke Control Bylaw and the protection of residential development from industrial pollution. Water conservation programs have been implemented. The protection of important bodies and land areas within the City is stated in the plan. Drinking water supply is protected from development. The City is also in the process of selecting a new secondary (possibly tertiary) sewage treatment plant.

The landfill site will segregate waste material and compost some material in the future. A Recycling Depot has been developed by a non-profit organization and with the Yukon Conservation Society. The Federal Green Plan will also provide funding to citizens for municipal projects for waste reduction. A site selection process for hazardous waste has been done through a difficult planning process.

Agricultural development may be permitted in areas where fertile soils are found in the city and where there is no conflict with existing and potential urban land use. Rural land use planning policies include the protection from development of critical wildlife habitats, as well as wildlife movement corridors and migration routes.

There is no formal designation for environmentally sensitive areas. A very general statement relates to the protection from development of certain sensitive areas because of bedrock, flooding susceptibility, high ground elevation. A general statement exists to retain natural vegetation and to provide soil and slope protection as well as wind buffers. A system of parks already exists and the embellishment of the waterfront and protection of an appealing

feature of the downtown area -- the Whitehorse Escarpment -- is recommended. The Parks and Recreation Department is considering alternatives to pesticides. Designation of ESAs will be considered in the future for natural areas.

In the past, because of physical and environmental constraints, community development in the City of Whitehorse has occurred in a generally linear and scattered form. The Official Community Plan is an attempt to facilitate a more concentrated community development pattern. As a result of this orientation, new communities are concentrated in one area. This policy is implemented through subdivision although nothing is done at the present time to encourage energy efficiency in the new subdivisions. Advertising is done to promote public transit, but low ridership levels are problematic. A pedestrian/cycle path along the base of the escarpment has been proposed. Most initiatives in the energy field, for example public education programs to save energy, have been undertaken by Yukon Energy, a territorial organization. The street lighting program has been efficient in reducing energy consumption.

Environmental impact assessment is a federal requirement. There is no specific requirement at the municipal level. The Territory has passed an Environmental Act for the entire territory, which should be in effect by 1992-1993.

14.2 AIR QUALITY POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
NO_2			X	
SO_2			X	
CO and CO_2			X	
Ozone			X	
Use of Alternative Fuels			X	

OTHER

There are no specific municipal policies for air quality other than the Wood Smoke Control Bylaw, which has been implemented to prevent the degradation of air quality caused by the operation of wood fires for residential purposes.

EVALUATION

Monitoring: The Wood Smoke Control Bylaw has been implemented very successfully. Monitoring is done by recording the number of complaints and infractions to the bylaw.

14.3 WATER QUALITY AND CONSERVATION POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Water Conservation	X			1
General Water Quality	X			2
Drinking Water Quality	X			3, 4
Wastewater Treatment Upgrading	X			5
Protection of Groundwater Supplies	X			6

WATER CONSERVATION

1. Water conservation programs have been implemented. Frost protection devices called bleeders have been installed. Articles are written in a newsletter to educate the public regarding water conservation. Water meters have been installed in homes. Low flow toilets are required in residential and commercial buildings.

WATER QUALITY

2. Protect important water bodies and land areas in the City for public recreation, conservation, and fish and wildlife habitats from development that would unduly interfere with or injuriously affect the amenities, enjoyment and use of those areas;
3. a buffer zone will be established along the Yukon River, and other important water bodies, in order to prevent intensive development that may injuriously affect those water bodies. The Yukon River is the City water supply.

DRINKING WATER QUALITY

4. The type and intensity of development in the community water supply watershed areas as well as areas of ground water development and recharge shall be limited and controlled, in order to protect the City's potable water supply.

WASTEWATER TREATMENT UPGRADING

5. The City is in the process of selecting a new secondary (possible tertiary) sewage treatment plant.

PROTECTION OF GROUNDWATER SUPPLIES

6. Major sources of ground and water pollution shall be controlled and improved where possible. Encourage activities and programs to correct the litter problem.

EVALUATION

Success/Problems: Most conservation programs are new and therefore difficult to evaluate.
Monitoring: Is done for cost and public support for water conservation programs.

14.4 SOLID WASTE POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Waste Reduction	X			1
Alternatives to Disposal				
Recycling	X			2, 3

WASTE REDUCTION

1. The landfill site is undergoing several changes such as establishing areas to segregate waste materials and composting.

RECYCLING

2. Christmas Tree Program;
3. the Federal Green Plan will provide funding to citizens groups for municipal waste reduction projects.

OTHER

Recycling programs other than municipal: a recycling depot exists in the City's industrial zone, but it is not a municipal initiative. It has been developed by a non-profit organization and the Yukon Conservation Society. Many other clean-up initiatives are undertaken by non-profit organizations.

EVALUATION

Success/Problems: Too early to say. The City of Whitehorse has decided not to undertake a Blue Box Program because of costs. The segregation of waste materials is done directly at the site.

Monitoring: Done for cost and use at the landfill site. Better records are now available on what is being brought there.

14.5 HAZARDOUS WASTE POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Waste Reduction			X	
Alternatives to Disposal			X	
Recycling				

OTHER

The transportation and disposal of hazardous waste and dangerous goods in the City will be considered and addressed by the appropriate authorities. A Transportation of Dangerous Goods Bylaw has been written. Hazardous Waste storage facilities have been selected. An annual Household Hazardous Waste Collection Day is organized annually by non-profit groups.

EVALUATION

Success: The site selection process for hazardous waste has been completed.
Monitoring: The territorial government is in the process of establishing regulations.

14.6 LAND USE POLICIES AND PROGRAMS

SUBJECT AREA		OBJECTIVES			POLICY & PROGRAM NOTES
		present	absent	implicit	
Protection of agricultural land		X			1
Natural Areas	Protection of Biodiversity		X		
	Ecosystem Approach		X		
	Naturalization	X			2
	Urban Forest		X		
	Natural Areas (including Environmentally Sensitive Areas)			X	3, 4
	Greenway System/Open Spaces	X			5, 6, 7
	Land Rehabilitation	X			6

AGRICULTURAL LANDS

1. Agricultural development may be permitted in areas where fertile soils are found in the City and where there is no conflict with existing and potential urban land uses; a program to identify potential agricultural areas in the City should be considered.

NATURALIZATION

2. Natural vegetation in the City shall be retained whenever feasible to provide soil and slope protection as well as wind buffers.

NATURAL AREAS/ENVIRONMENTALLY SENSITIVE AREAS

3. Rural Land Use Planning Policies include:
   - critical fish habitats should be protected from unnecessary pollution and damage;
   - critical wildlife habitats should be protected from development and unnecessary encroachment;
   - critical wildlife movement corridors and migration routes shall be protected from unnecessary development;
4. there is no formal designation for ESAs. Future development shall be directed away from lands that have settlement susceptible soils, poor soil permeability, high water

tables and ground water seepage, flooding susceptibility, bedrock, critical wildlife habitat, and high ground elevation or other locations with climatic extremes; designation of Environmentally Sensitive Areas will be considered in the future for natural areas.

PARKS/OPEN SPACES

5. The system of parks should be established within the City in order to achieve the following land use objectives:
   - to improve the visual appearance of the environment;
   - to provide citizens and visitors with activity space at various levels of intensity;
   - to protect the natural environment;
   - to provide citizens and visitors with the opportunity to understand, appreciate and escape to the natural environment;
6. embellishment of waterfront and protection of an appealing feature of the downtown area: the Whitehorse Escarpment. A management program proposed the stabilization of the escarpment by reforestation;
7. the Parks and Recreation Department is considering alternatives to pesticides.

EVALUATION

Success: Too early to say.
Problems: Reliance on a regulatory tool (zoning bylaw) to protect open spaces.
Monitoring: Through public meetings; through Official Plan Review for Downtown.

14.7 ENERGY AND TRANSPORTATION POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Intensification	X			1
Public Transit	X			2
Cycling	X			3
Residential Energy Use	X			4
Commercial/Industrial Use	X			5

INTENSIFICATION

1. Due to physical and environmental constraints, community development in the City of Whitehorse has occurred in a generally linear and scattered form. The Official Community Plan is an attempt to facilitate a more concentrated community development pattern in order to make the provision of essential community services more economical and efficient. As a result of this orientation, new communities are concentrated in one area. Nothing is done at the present time to encourage energy efficiency in the new subdivisions. There is also a desire to increase population density in the Downtown Area.

PUBLIC TRANSPORTATION

2. Advertising encourages citizens to use public transit.

CYCLING/WALKING

3. A pedestrian/cycle path along the base of the escarpment has been proposed.

RESIDENTIAL AND COMMERCIAL ENERGY CONSERVATION

4. Energy efficiency, including solar energy use should be considered in future community development and redevelopment. Wind energy will also be considered in the future, although this is not the responsibility of the municipalities;
5. Street Lighting Program.

EVALUATION

Success: The street lighting program has been successful in reducing energy consumption.
Problems: It is difficult to promote public transit.
Monitoring: Ridership on transit is monitored. Energy consumption for the City is also monitored.

14.8 ENVIRONMENTAL ASSESSMENT

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Environmental Impact Assessment			X	
Cumulative Impacts			X	

Environmental impact assessment is a federal requirement. There is no specific requirement at the municipal level. The Territory recently passed an Environmental Act for the entire territory.

15 YELLOWKNIFE

15.1 General Picture

Yellowknife's population is 15,179 and its land area 102.38 square kilometres.
The Yellowknife General Plan establishes policies for the development of the city for the next five years. All growth and development for the duration of the plan shall be in accordance with the intent of the plan as reflected in the goals, objectives, policies and accompanying maps. The approach taken has been to forecast the potential population growth in the city, and then determine the form or pattern of development that will accommodate this growth.

Some of the objectives of the Plan are the following:[37]

- To ensure that land development occurs in the most economical and responsible way possible, consistent with good land development practice;
- To ensure that future development occurs with regard to health, safety and welfare of the residents.

15.2 AIR QUALITY POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
CO_2 and Other Greenhouse Gases (e.g., Methane)			X	
SO_2			X	
NO_2			X	
Use of Alternative Fuels	X			

ALTERNATIVE FUELS

1. Propane has been tried for the City fleet. The cold climate does not favour this type of fuel.

OTHER

Standards for industries: the Zoning Bylaw itself addresses air quality in the Performance Standards for its Industrial Zone, and any industrial operation including production, processing, cleaning, repair, storage, or distribution of any material shall conform to the following standards: smoke, dust, ash, odour, toxic gases shall only be released to the atmosphere in such amounts and under such conditions and safeguards as shall have been approved by Council. (This is only a general statement and it has never been implemented.) Dust control: one of the major problem in Yellowknife is dust due to the dry climate, particularly in the spring. Dust control is addressed by the Public Works.

15.3 WATER QUALITY AND CONSERVATION POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Water Conservation			X	1
General Water Quality	X			2
Drinking Water Quality	X			2
Wastewater Treatment Upgrading	X			3-7
Protection of Groundwater Supplies	N/A		X	

WATER CONSERVATION

1. Is not an issue in Yellowknife as there are 25 lakes in the City with its small population of 15,000 people.

WATER QUALITY/DRINKING WATER

2. To provide a sufficient quantity of water to each household for basic consumption, sanitation and personal hygiene in a manner consistent with reasonable health and sanitation standards; Yellowknife has a privileged situation as it has few upstream users and industries. The City is looking for a more convenient (closer) source of water supply for the future. The City is also looking at ways to reduce the expense of water treatment and distribution. Because of the permafrost, water has to be heated before it gets delivered.

WASTEWATER TREATMENT

3. To collect all sewage and waste water generated by each household in a manner consistent with reasonable health and sanitation standards;
4. to provide treatment and to dispose of sewage and waste water in a manner which meets applicable regulatory requirements;
5. to intercept surface storm water runoff and to convey this runoff to receiving waterbodies hence limiting potential stormwater damage to private and public lands to a reasonable degree;
6. to initiate a review of the sewage treatment system and facility to ensure that the system has flexibility to accommodate the growth of the City over time;
7. the whole lagoon system will have to be expanded, as it is reaching its capacity. The quality of discharge will also have to be improved.

EVALUATION

Success: The use of meters has helped to make users pay for what they use. Monitoring the use of water used by developers and all other users has heightened enforcement.

Problems: Removing subsidies previously given to developers has met opposition. The real cost of treated water is very high.

Monitoring: Done informally, through a general observation of the amount of water treated.

15.4 SOLID WASTE POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Waste Reduction	X			1
Recycling	X			1, 2, 3
Alternatives to Disposal	X			1

WASTE MANAGEMENT REVIEW

1. The City is reviewing its waste management practices to manage the collection and disposal of solid waste in a manner consistent with applicable regulatory requirements. New policies may include inducements for waste recycling and incineration as well as traditional methods of waste disposal.

RECYCLING PROGRAMS

2. A private non-profit group called the Ecology North Group, supported with City grants, is important in the field of waste management. The Ecology North Group has established a recycling centre for aluminum, glass and paper;
3. the City initiated recycling of paper.

OTHER

Twice a year, during spring and fall, through the Community Service Departments Parks and Recreation Branch, the City organizes clean-ups. The City gives grants to local non-profit groups who will pick up litter when the snow melts. This effort has been very successful. Four years ago, the City started to hire street sweepers to control the downtown litter problem.

EVALUATION

Success: Recycling is becoming an established practice at City Hall and with residents. It is difficult to evaluate the extent of the success because the process is under review.

Problem: Yellowknife is isolated and it is very expensive to ship recycled material. Cars are not recycled. The landfill site is quite open and there is no strict control on what kinds of waste enters it. The capacity of the landfill has been reached; the problem is not in finding a new location but in making sure that the new site will be viable, suitable and safe.

Monitoring: Not applicable as it is a new initiative.

15.5 HAZARDOUS WASTE POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Waste Reduction			X	
Recycling			X	
Alternatives to Disposal	X			1

ALTERNATIVES TO DISPOSAL

1. Twice a year, the Fire Department organizes a collection of household hazardous waste (paint, herbicides, insecticides, old medicines).

EVALUATION

Problem: There is little control on what enters the landfill site.

15.6 LAND USE POLICIES AND PROGRAMS

SUBJECT AREA		OBJECTIVES			POLICY & PROGRAM NOTES
		present	implicit	absent	
Protection of agricultural land					N/A
Natural Areas	Protection of Biodiversity			X	
	Ecosystem Approach			X	
	Naturalization	X			1
	Urban Forest			X	
	Natural Areas (including Environmentally Sensitive Areas)	X			2-7
	Greenway System/Open Spaces	X			8-11
	Land Rehabilitation			X	

NATURALIZATION

1. The Ecology North Group has created a garden of native plant species. There are many open areas in a natural state. No formal policy exists against the use of pesticides and insecticides.

NATURAL AREAS/ENVIRONMENTALLY SENSITIVE AREAS

The ESAs are located on public property for the most part. Most of the land in Yellowknife is Crown Land.

2. To recognize and protect distinctive important topographic features such as: highpoint views, steep slopes and unique individual valley;
3. to preserve the waterfront for the use of all residents and visitors to Yellowknife;
4. to continue to allow specific uses along the waterfront that are consistent and compatible with their waterfront use and location. This would include the retention of the current policy of leasing land to prospective developers for uses that are not in conflict with surrounding areas or the public use of the waterfront;
5. to work with the appropriate federal departments responsible for the control of activity and development on the water in an effort to resolve outstanding problems and difficulties such as land and water use;
6. the purpose of the Environmental Reserve designation is to preserve as close to a

natural state as possible those lands within the municipality which, because of their unique physical or ecological characteristics within the city, Council feels should be protected from all but the most passive forms of development. The Environmental Reserve designation shall be employed only on those lands that in the opinion of Council, and following a detailed review, are felt to require a high level of protection. Conditionally Permitted Uses include:

- Recreational, educational, institutional, and public utility uses that can be shown, to the satisfaction of Council, not to represent a permanent impact on the unique characteristics of the lands.
- All uses are to be considered on their individual merit and Council shall set out the minimum standards with which individual developments must comply;

7. to develop a Marine Park which incorporates a wetlands park and a marina at the School Draw-Detah Ice Road Site. This park will enhance the existing wetland habitat in the Willowflats area, as well as provide a safe and useful location for the moorage of boats within the City.

OPEN SPACES

8. To provide the community with a variety of open spaces to meet the needs of the different types of recreational activity;
9. to integrate the natural open space unique to Yellowknife into the general fabric of the developing community;
10. to provide for natural open space buffers between adjacent development scheme areas as identified on "The General Plan Land Use" Map 4 and on the "Open Space, Parks, Recreation and Trails" Map 5;
11. a conscious effort is made by the City to link the City trails. This is an expensive undertaking which has been made possible by a grant from the federal government. Public use and access to the trails is encouraged.

IMPLEMENTATION

The Zoning Bylaw is the main tool used.

EVALUATION

Problems: The Environmental Reserves are specific environmental areas as designated by the municipality. Until now, this new designation has not been used in contentious places. A lot of waterfront is leased by the City to private owners. It is difficult to rationalize in an environment like Yellowknife, where there is so much space, that a piece of land has to be protected for its unique characteristics. Environmental Reserves is a politically sensitive subject. It will become more evident in areas where squatters have been living for many years. A Secondary Development Scheme is in progress and will call for the identification of Environmental Reserves.

Success: The Greenway System as well as the pedestrian system are very successful. Other programs are new and therefore difficult to evaluate.

Monitoring: Not done formally. Community services count the number of people using the park system.

15.7 ENERGY AND TRANSPORTATION POLICIES AND PROGRAMS

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Intensification		X		1
Public Transit	X			2
Reduce Car use	X			3
Cycling	X			4
Residential Energy Use	X			5, 6, 7
Commercial/Industrial Use	X			5, 6, 7

INTENSIFICATION

1. One of the key goals of the General Plan of the City of Yellowknife is intensification or the development of the City in a concentrated form. The reasons for intensification were: first the cost of new servicing and the environmental use of land. However, there is no clear statement of this intention in the Plan. The new Plan Review (1993) will address this issue to give a clear direction. Measures have already been taken to agglomerate new developments with existing development. An effort is also being made to concentrate offices in a dominant activity centre.

PUBLIC TRANSIT

2. The public transit system has been established in the last three or four years through federal-territorial grants and City subsidies. It has improved the system and, as a consequence, more people use it in the winter.

REDUCE CAR USE

3. The trail system has reduced downtown traffic because a lot of people now leave their cars at home. It is estimated that 500 people use this system every day.

CYCLING

4. A Bicycle Pathways Plan is to be developed over time, with a specific set of bicycle paths, to parallel arterial and other major roads.

RESIDENTIAL AND COMMERCIAL ENERGY USE

5. An Energy Audit has been done for City buildings to reduce energy consumption;
6. to recognize that Yellowknife is subject to extreme winter conditions and because of that, the design of developments should recognize: the impact of prevailing winds; the use of sun; the orientation of windows, doors and blank walls; the need for appropriate screening of indoor and outdoor open spaces; the need for weather

protection, and the need for energy conservation;

7. to encourage climate control designs for all new buildings, especially in the downtown area, on all major apartments and multi-family developments and on all public developments.

EVALUATION

Success: The public transit system as well as the trail system have been successful. "In house" (City) energy conservation programs have also been successful.

Problem: Energy prices in the City of Yellowknife are very high; a third of its electrical energy is generated by diesel.

Monitoring: The monitoring of energy savings is done by the City as a corporate goal.

15.8 ENVIRONMENTAL ASSESSMENT

SUBJECT AREA	OBJECTIVES			POLICY & PROGRAM NOTES
	present	implicit	absent	
Environmental Impact Assessment			X	
Cumulative Impacts			X	

OTHER

Environmental impact assessment: to request the federal departments to assess the environmental impacts of temporary activities (e.g. Caribou Carnival) held on the lake ice during winter. Specific "clean-up" and environmental standards should be established to cover such items as garbage collection and petroleum pollution. Collection of environmental data: to develop an inventory of environmental data as it becomes available on all lands and water bodies within the City of Yellowknife.

ENDNOTES FOR APPENDIX 1

1. All population and land area figures in this report are drawn from *Census Divisions and Census Subdivisions Population and Dwelling Counts*, Statistics Canada, 1991.

2. Vancouver Special Office for the Environment, *Status Report on the Clouds of Change Task Force: Implementation* (Vancouver: City of Vancouver, 1992).

3. City of Ottawa, *Creating Our Future: Steps To A More Livable Region* (Ottawa: City of Ottawa, 1990), p. 33.

4. City of Vancouver, *Clouds of Change* (Vancouver: City of Vancouver, 1992), p. 5.

5. City of Vancouver, *Waste Reduction Initiatives* (Vancouver: City of Vancouver, 1992) p. 10.

6. City of Vancouver Engineering Department, *Summary of Vancouver Waste Reduction Initiatives* (Vancouver: City of Vancouver, 1990).

7. See note 18 in Volume 1.

8. City of Edmonton, *Edmonton General Municipal Plan* (Edmonton: City of Edmonton, 1990), p. 1.

9. Ibid., p. 1.

10. Letter of 26 November, 1991, from Mary Ann McConnell-Boehm, Planner, Forecasting and Policy Development Group, Strategic Planning Branch, Planning and Development Department, City of Edmonton.

11. City of Winnipeg, *Plan Winnipeg: Toward 2010* (Winnipeg: City of Winnipeg, 1992), p. 1.

12. The Commission on Planning and Development Reform in Ontario, *New Planning News* (Sept. 1992): p. 8.

13. R. Tomalty and S. Hendler, "Green Planning: Striving towards Sustainable Development in Ontario's Municipalities," *Plan Canada* (May 1991): pp. 27-32.

14. Region of Sudbury, Planning and Development Department, Ramsey Lake Technical Committee, *Ramsey Lake Community Improvement Plan* (Sudbury, 1991), p. 83.

15. Virginia Maclaren, *Sustainable Urban Development in Canada: From Concept to Practice Volume III: Compendium of Initiatives* (Toronto: ICURR Press, 1992), p. 186.

16. Ibid., p. 57.

17. City of Ottawa, *A Vision for Ottawa* (Ottawa: City of Ottawa, 1991), p. 2.

18. Although the official names of the departments are in French, they are translated here for clarity of meaning.

19. Ville de Montréal, *Le Défi Déchets: Un défi d'avenir* (Montréal: Ville de Montréal, 1991).

    a) Énoncé d'orientation pour une gestion intégrée des déchets solides et des matières récupérables à la Ville de Montréal;
    b) projet montréalais vers une gestion intégrée des déchets solides et des matières récupérables à la Ville de Montréal;
    c) plan d'action pour une gestion intégrée des déchets solides et des matières récupérables à la Ville de Montréal.

20. Arlette Fortin, "Tempête sur Montréal," *Municipalité,* (Dec. 92/Janv. 93): pp. 9-11.

21. Montréal, *Le défi déchets*.

22. City of Montréal, *Montréal: The Sustainable Development Option* (Montréal: City of Montréal, 1991).

23. City of Montréal, *Réussir Montréal: Orientations and Strategies of the Montréal City Plan* (Montréal: City of Montréal, 1992), p. 86.

24. Communauté Urbaine de Montréal, *Résolution de la Conférence Internationale des maires du Saint-Laurent et des Grands Lacs* (Montréal: Ville de Montréal, 1991).

25. Ville de Sherbrooke, *Plan d'Urbanisme de la ville de Shebrooke* (Sherbrooke: Ville de Sherbrooke, 1990), pp. 62-65.

26. Villes en santé (Healthy Cities) is a multisector approach in the fields of health, social and municipal affairs, and education. It involves stakeholders from those fields and the population at large in an attempt to improve health and the quality of life. This translates into various projects, some of which naturally deal with the environment.

27. Ville de Sherbrooke, *Plan d'Urbanisme* (Sherbrooke: Ville de Sherbrooke), pp. 11-13.

28. City of Fredericton, *Capital City Municipal Plan* (Fredericton: City of Fredericton, 1991).

29. Cavendish Resort Municipality, *Resort Municipality Zoning and Subdivision Control Bylaw, for Stanley Bridge, Hope River, Bayview, Cavendish, North Rustico*, (Cavendish Resort Municipality, 1991), p. 25.

30. Municipal Planning Strategy prepared in accordance with the provisions of the *Nova Scotia Planning Act*, 1983.

31. Ibid., p. I-4.

32. Ibid., p. I-1.

33. City of St. John's, *Significant Waterways and Wetlands of St. John's* (St. John's: City of St. John's).

34. See note 19, Volume 1.

35. MacLaren, *Sustainable Urban Development in Canada*, pp. 271-271.

36. City of Whitehorse, *Official Community Plan* (Whitehorse: City of Whitehorse, 1987), p. 3.

37. City of Yellowknife, *General Plan* (Yellowknife: City of Yellowknife, 1988).

APPENDIX 2
ENVIRONMENTAL STATEMENTS

2.1 ENVIRONMENTAL STATEMENTS AT THE BEGINNING OF ADOPTED PLANS

Municipality	Statement present	Statement absent	Main Focus
Edmonton	X		Environmentally sensitive policy areas City as a good corporate environmental citizen
Regina	X		Sustainable Development for the long-term development of the City
Sudbury Regional Municipality	X		Ecological principles throughout the document, e.g., protection of natural ecosystem processes by development
Sherbrooke	X		1. Define City's responsibilities and powers in the environmental field 2. Review legislation and reorganize municipal structures to have more power in this field
Cavendish Planning Area	X		Protection of unique natural environment Protection of groundwater
Yellowknife		X	
Whitehorse		X	

2.2 ENVIRONMENTAL STATEMENTS INCLUDED IN PLANS WHICH HAVE NOT BEEN ADOPTED YET

Municipality	Statement Present	Statement absent	Main Focus
Winnipeg	X		Environmental stewardship; Environmentally-responsible decision-making
Toronto	X		Ecologically-sound policies to promote and protect natural environment, minimize pollution and energy consumption and encourage stewardship of land resources
Ottawa	X		Plan's mission is sustainable urban development
Montreal	X		Protection of natural elements; Choice of public transportation; Control of environmental problems; Equity principles
Fredericton	X		Vision for 2010 of a liveable City with a small town ambience
Dartmouth	X		Protection of natural environment
St. John's		X	

2.3 OTHER ENVIRONMENTAL STATEMENTS NOT INCLUDED IN A MUNICIPAL PLAN

Municipality	Statement Present	Statement absent	Main Focus
Vancouver	X	X	Major involvement of the City to address the problems of climate change in a holistic way, i.e. in working with different departments to find solutions.

SUMMARY

In some cities, like Vancouver, Edmonton, Regina, Winnipeg, Sudbury, Toronto, Ottawa, Montreal, Sherbrooke, Fredericton, Cavendish Planning Area, Dartmouth, there are specific statements on the environment and/or sustainable development and in the other municipalities such as Whitehorse, Yellowknife and St-John's, there are no specific statements on the environment at the beginning of the Plan, even if there are environmental policies and programs in some areas.

APPENDIX 3
QUESTIONNAIRE

METHODOLOGY

A questionnaire was developed using the analytic framework presented in Chapter 1, Volume 1. The questionnaire includes sections on: air quality, water quality and conservation, solid and hazardous waste management, land use planning including the protection of natural areas, energy and transportation and environmental assessment. (The framework is presented in Tables 1.5 to 1.11 in Volume 1).

The respondents were chosen from contacts made while gathering municipal documents. The purpose of the questionnaire was to complement the review of municipal documents, especially regarding program implementation, evaluation and monitoring. Before sending the questionnaire, a phone call was made to the senior planning officials in each of the 15 municipalities in the sample (see Tables 1.1 & 1.2 in Volume 1), explaining the purpose of the study and the mandate of ICURR. The respondents were told that they would receive the questionnaire by mail within the next ten days and that we would call back within a month to set a convenient time for a 30 minute phone interview using the questionnaire. The questionnaire was intended for the staff involved with environmental policy development and program implementation. In some cases, at the suggestion of senior officials, the questionnaire was sent to other departments such as water branches, parks and recreation, engineering, public health and special offices of the environment.

QUESTIONNAIRE

The following questionnaire is part of a national study undertaken by ICURR on sustainable development at the municipal level. This questionnaire will help ICURR to determine the main problems associated with the implementation of environmental policies in selected Canadian municipalities. It will also provide information on the successful implementation of environmental policies.

We thank you for your cooperation.

INTRODUCTION

In this questionnaire, you will be asked to identify environmental policies which your municipality has developed in its municipal plan, which programs and strategies have been used to implement these policies; which have been successful and which have been unsuccessful and why; and finally, which monitoring mechanisms were used to evaluate the implementation of these strategies/programs.

By policies, we mean statements in the municipal plan which give rise to strategies and programs. We are especially interested in developing a better understanding of the implementation of policies.

For the purposes of this questionnaire, the term "municipal plan" is equivalent to "official plan" and "development plan".

To facilitate your response, we have listed a series of policies found in our examination of your municipal plan.

AIR QUALITY

1. Has your municipality included environmental policies in its municipal plan to improve air quality? (Please indicate which areas with a check mark). If you have not included any environmental policy related to air quality, please go to # 6.

   A) reduction of NO_2 emissions (nitrogen dioxide)
   B) reduction of CO_2 emissions (carbon dioxide)
   C) purchasing policy to reduce the use of products which damage the ozone layer
   D) investigate and implement use of non-fossil and carbon emitting fuel in public transit vehicles.
   E) others (specify)

2. What programs and strategies has your municipality developed to implement these policies? Please specify to which policies these programs and strategies apply.

3. From your experience, which of your environmental strategies and programs on air quality have been successfully implemented and why?

   Does not apply as it's a new initiative and cannot be evaluated yet (Go to # 5)

4. Which of your environmental strategies and programs on air quality did not work well and why?

5. Have you developed mechanisms to monitor these strategies and programs? Please specify to which policies the mechanisms apply.

   Yes
   No (Go to question # 6)

   If yes, do you monitor

   cost
   use
   implementation
   public support
   others (specify)

Please explain your monitoring mechanisms.

II- WATER CONSERVATION AND QUALITY

6. Has your municipality included environmental policies in its plan to improve water conservation and quality? Please indicate in which areas. If you have not included any environmental policies related to water conservation and quality, please go to # 11.

A) water conservation
B) general water quality
C) drinking water quality
D) wastewater treatment upgrading
E) protection of groundwater supplies
F) others (specify)

7. What programs and strategies has your municipality developed to implement these policies?

8. From your experience, which of your environmental strategies and programs on water quality and conservation have been successfully implemented and why?

Does not apply as it's a new initiative and cannot be evaluated yet (Go to # 10)

9. Which of your environmental strategies and programs on water quality and conservation did not work well and why?

10. Have you developed mechanisms to monitor these strategies and programs?

Yes
No (Go to # 11)

If yes, do you monitor:

cost
use
implementation
public support
others (specify)

Please explain your monitoring mechanisms

III- SOLID WASTES

11. Has your municipality included environmental policies to address problems with solid wastes? Please indicate in which areas. If you have not included any environmental policies related to solid wastes, please go to question # 16.

A) waste reduction
B) methods of waste disposal
C) recycling
D) others (specify)

12. What programs and strategies has your municipality developed to implement these policies?

13. From your experience, which of your environmental strategies and programs on solid wastes have been successfully implemented?

Does not apply as it's a new initiative and cannot be evaluated yet (Go to # 15)

14. Which of your environmental strategies and programs on solid wastes did not work well and why?

15. Have you developed mechanisms to monitor these strategies and programs?

Yes
No (Go to # 16)

If yes, do you monitor:

cost
use
implementation
public support
others (specify)

Please explain your monitoring mechanisms.

IV- HAZARDOUS WASTES

16. Has your municipality included environmental policies to address problems with hazardous wastes? Please indicate in which areas. If you have not included any environmental policies related to hazardous wastes, please go to # 21.

A) waste reduction
B) methods of waste disposal
C) recycling
D) others (specify)

17. What programs and strategies has your municipality developed to implement these policies?

18. From your experience, which of your environmental strategies and programs on hazardous wastes have been successfully implemented?

Does not apply, as it's a new initiative and cannot be evaluated yet (Go to # 20)

19. Which of your environmental strategies and programs on hazardous wastes did not work well and why?

20. Have you developed mechanisms to monitor these strategies and programs?

Yes
No (Go to # 21)

If yes, do you monitor:

cost
use
implementation
public support
others (specify)

Please explain your monitoring mechanisms.

V- LAND USE

21. Has your municipality included land use policies in its plan to promote sustainable development? Please indicate in which areas. If you have not included environmental land use policies, please go to # 26.

A) intensification of urban development (developing more intensely within existing urban boundaries)
B) protection of agricultural lands
C) natural areas
   i) Environmentally Sensitive Areas (ESAs)
   ii) Open Spaces
   iii) Areas of Natural and Scientific Interest (ANSIs)

   iv) Park Naturalization

   v) Natural Area Rehabilitation (e.g.,reducing use of pesticides, using native plants)

   vi) Others (specify)

D) Others (specify)

22. What programs and/or strategies has your municipality developed to implement these policies?

23. From your experience, which of your land use environmental strategies and programs on land use have been successfully implemented and why?

Does not apply as it's a new initiative and cannot be evaluated yet.(Go to #25)

24. Which of your environmental strategies and programs on land use have not worked well and why?

New initiative, cannot evaluate yet.

25. Does your municipal plan include objectives to protect genetic diversity of animal and plant life?

Yes
No (Go to # 26)

Please explain what strategies you have developed to protect genetic diversity of animal and plant life.(For example did you do a State of the Environment Report?)

26. Have you developed mechanisms to monitor these strategies and programs?

Yes
No (Go to # 27)

If yes, do you monitor:

cost
use
implementation
public support
others (specify)

Please explain your monitoring mechanisms

VI- ENERGY and TRANSPORTATION

27. Has your municipality developed environmental policies in its plan to promote energy conservation? Please indicate in which areas.If you have not included environmental policies related to energy conservation, please go to # 32.

a) residential energy use
b) commercial/industrial energy use
c) transportation
d) others (specify)

28. What programs and/or strategies has your municipality developed to implement these policies?

29. From your experience, which of your environmental strategies and programs on energy have been successfully implemented and why?

Does not apply as it's a new initiative and cannot be evaluated yet (Go to # 31)

30. Which environmental strategies and programs on energy did not work well and why?

31. Have you developed mechanisms to monitor these strategies and programs?

Yes
No (Go to question # 32)

If yes, do you monitor

cost
use
implementation
public participation
other (specify)

Please explain your monitoring mechanisms

32. Are there any other areas in which environmental policies have been incorporated into the municipal plan? If environmental policies are not incorporated anywhere, please go to # 33. If yes, please specify.

33. Does your municipality have provisions for Environmental Assessment (EA) in its municipal plan?

Yes
No (Go to next question)

Please explain in what areas EA applies in your municipality.

34. Do municipalities have shared jurisdiction for environmental issues in your province?

VII- FINANCING

35. How does your municipality finance its environmental policies?

VIII- GENERAL PLANNING APPROACH

36. Overall, did you adopt an ecosystem approach to develop your municipal plan?

Key characteristics of an ecosystem approach:

1) includes the whole system, not just parts of it;

2) incorporates the concepts of carrying capacity, resilience, and sustainability, suggesting that there are limits to human activity;

3) is based on an ethic in which progress is measured by the quality, well-being, integrity, and dignity it accords natural, social, and economic systems.

Yes
No (Go to # 44)

Please explain how your municipal plan incorporated an ecosystem approach.

IX- SUMMARY

37. Generally speaking, what do you think are the main problems associated with the implementation of environmental policies? Please rank numerically by priority (e.g. 1,2,3,4...)

a) lack of funds
b) lack of clear definition of municipal mandate in this field
c) lack of training for staff in environmental problems
d) lack of defined authority at municipal level to implement these policies (specify area if possible)
e) lack of human resources to implement these policies
f) other (specify)

38. Do you think that, in the near future, the provincial government will delegate more environmental responsibilities to municipalities?

39. Are there any other issues or concerns regarding the implementation of environmental policies on which you would like to comment?

Thank you again for your time and cooperation!