



arthWise Thunder Bay will focus the energy,
involvement and collective wisdom of the
community to secure the environmental health
of our region, and thereby improve the social and
economic wellbeing of future generations.

- earthWise mission statement adopted as part of the earthWise Terms of Reference by City Council in 2005





www.earthwisethunderbay.com



Mayor Lynn Peterson, City of Thunder Bay

# Message from the Mayor of the City of Thunder Bay

On behalf of City Council, I am pleased to provide you with a copy of the EarthWise Community Environmental Action Plan.

The Plan reflects the City's four strategic priorities: A stronger and more diversified economy; A cleaner, greener, more beautiful and proud Thunder Bay; A high quality of life; and to be One of the best run cities. This reinforces the importance of working together towards a shared vision that integrates sustainability across all sectors.

As you read through this report, you'll see that as a community, we are making progress through the determined efforts of many. This Plan represents the work of countless community members who, like me, value our high quality of life and spectacular natural environment.

While this Plan is an important first step, it is only that in a series to come. Ensuring the success of the Plan will require everyone to join us on the journey towards sustainability. Through your continued support and the sharing of ideas, I am confident that our residents, industry, businesses, institutions and organizations will achieve great results. We have a shared vision that motivates us to work toward a better tomorrow that is firmly planted in the reality of today. Together, we will strive for a healthy community that is clean, green, beautiful and proud! Life – and business – is better here.

Sincerely,

Mayor Lynn Peterson

City of Thunder Bay



#### Dear Citizens of Thunder Bay,

It is with great pride we submit to you EarthWise, Thunder Bay's Community Environmental Action Plan (CEAP). It is the culmination of three years of work by EarthWise volunteers, and continues to build upon the existing initiatives and foundations laid by the City as well as local groups and individuals.

Thunder Bay is a city blessed with many resources, ranging from our place on the shores of the world's largest freshwater lake to the integrity of the local people and the pride they have in their community. These resources are interconnected and together form our social, cultural, and economic basis, situated within our natural environment. We must promote the sustainable development, use and appreciation of our resources in order to move Thunder Bay forward as a progressive cleaner, greener, and more beautiful city. The CEAP is a blueprint for those first steps with a focus on reducing greenhouse gas emissions. The next step is to adopt the plan as a living document that will help guide strategic long term planning and decision making within the city. Then work can begin on detailing indicators, timelines, and accountabilities.

In developing the CEAP we consulted with a variety of stakeholders, forming working groups to tackle each issue so that the voices of all stakeholders could be heard. We must thank all the volunteers, the 50+ EarthWise Community Partners, City of Thunder Bay staff, administration and Council, and the Federation of Canadian Municipalities who granted us a Green Municipal Fund Grant to help carry out this work. We hope that you will take time to read the plan and implement new strategies into your everyday life and operations.

Thunder Bay is truly Superior by Nature – let's make it sustainable.

Sincerely,

The Earthwise Steering Committee

# **The Earthwise Steering Committee**

Councillor Joe Virdiramo
Councillor Rebecca Johnson
Councillor Lynda Rydholm
Charles Campbell, Chair

City of Thunder Bay 2004-08
City of Thunder Bay 2006-08
Superior Credit Union

Sarah Kerton

Sarah Kerton

Julian Holenstein

Vanessa DeGiacomo

Bernie Edwards

Kerri Marshall

Shelley Vescio

Etrick Blackburn

Etrick Technology CEAP Coordinator, TWKS CTB

Manager of Administration, FAFL CTB

Manager of Environment, TWKS CTB

City Forester, Community Services CTB

Thunder Bay District Health Unit

Hugh Briggs Lakehead University
Lynn Duffield Zero Waste Action Team

Michelle Glena Ontario First Nation Technical Services

Corporation

Janice Horgos Zero Waste Action Team

Duncan Hutchison Citizen

Brian Kurikka Confederation College

Damien Lee Anishanabek of the Gitchi Gami

Ellen Mortfield EcoSuperior

Don Murray Citizen/Past EW Chair
Catherine Schwartz Mendez Food Action Network

Heidi Strobl FedNor

Jane Todd Ontario Power Generation

Adriana Wilson Youth — Hammarskjold High School Joseph Proulx Youth — Hammarskjold High School

# Thank you!

Since its inception in 2004, countless people have been involved in making the EarthWise Plan a reality.

We thank you for your vision, your dedication, and your hard work. We also thank all those who reviewed documents and provided their comments and insights, helping to make this document a stronger one.

## **Active Transportation**

Sean Albanese Thunder Bay Recreational Trails Association

Anne Ostrom TBDHU

Tammy Cook Lakehead Regional Conservation Authority

Lynne Peters Confederation College

Lynn Duffield Resident
Sgt. Glenn Porter CTB Police
Paul Fayrick, Co-Chair CTB Parks
Werner Schwar Resident
John Husiak CTB Roads

Doug Smith Thunder Bay Recreational Trails Association

Sarah Kerton EarthWise
Donna Sippala CTB MAAC

Adam Krupper Lakehead University Student Union
Tessa Soderberg Municipal Accessibility Advisory Committee

Judi Marton Thunder Bay District Health Unit

Dave Stephens CTB Transit

Pat Mauro, Co-Chair CTB Engineering

Heidi Strobl Thunder Bay Cycling Club

Syl Menic CTB Planning
Barry Wolframe Resident

# **Air Quality**

Paula Sdao, Chair True Grit Consulting

Damien Lee Anishanabek of the Gitchi Gami

Dr. Lionel Catalan Lakehead University
Jane Todd Ontario Power Generation
Ina Chomyshyn Lakehead University
Chris Walton AbitibiBowater
Sarah Kerton EarthWise

# **Community Greening**

Lynn Duffield, Co-Chair Zero Waste Action Team
Dr. Lynne Sevean Lakehead University

Janice Horgos ZWAT

Heidi Strobl, Co-Chair Thunder Bay Field Naturalists

Susan Jaward Master Gardeners

Shelley Vescio CTB Forester
Dr. Lada Malek Lakehead University
Rebecca Johnson CTB Council

Sean Albanese Thunder Bay Recreation Trails
Sandra Theriault Thunder Bay District Health Unit
Ann Roddy Thunder Bay Master Gardeners

Trees Thunder Bay

Fast Forward Thunder Bay

Charlsey Jacobs CTB Planning

#### Education

Megan Chocla

Vince Rutter

Jay Henderson, Chair Lakehead Board of Education

JoAnne Henderson Citizen Ruth Cook Citizen

Lynne Legros Zero Waste Action Team

John DeFaveri TBay Catholic District School Board

Rachel McGuiness Citizen

Marilyn Grudniski Little Lion's Daycare

Alexandra Phillion TBay Catholic District School Board

Scott Harris FW Rotary Club

Jenny Rainthorpe Citizen

# **Energy**

Charles Campbell, Chair Superior Renewable Energy Co-op

Tim Pagee Union Gas

Hugh Briggs Lakehead University

Derek Tessier EcoSuperior

Bernie Edwards CTB Facilities and Fleet
Jane Todd Ontario Power Generation

Brian Heppler Union Energy
Bill Willis TBHydro
Ken Jones Citizen
Tim Wilson TBHydro

Kerstin Muth Environment North

Robert Whiteside Ecogas



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Thank you!

#### Food

Thunder Bay Food Action Network - a coalition of individuals and organizations from health, social services, agriculture/food production, emergency food aid, education and environmental protection working to improve community food security.

## **Green Building**

Gerry Broere CTB Facilities and Fleet

Ellen Mortfield EcoSuperior Gerry De Benetti Citizen Don Rutledge EcoSuperior Jim Buie CTB Building Werner Schwar Landscape Architect

Tom Cook Citizen

Peter Spafford **Building Professionals Consortium** Pat Larocque Canadian Mortgage and Housing Corp

John Stephenson, Chair KSGM Architects

#### **Land Use**

Shannon Smith, Chair Oliver/Paipoonge

Eleanor Dunn Citizen Bev Dolcetti Citizen Bruce Hyer Wildwaters

Mark Smith **CTB Development Services** 

Leslie McEachern CTB Planning

**Emily Hawkins** Ministry of Environment Dr. Brian Lorch Lakehead University Scott Erdman CTBPlanning Decio Lopes CTB Planning Dr. Todd Randall Lakehead University Don Manahan Private Consultant

Kirsti Tasala PARO

#### **Pesticides**

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**Tobey Meyer** Canadian Cancer Society JoAnne Henderson Citizen Emir Vidjen Citizen Julian Holenstein EarthWise

Bruce Woodbeck Woodbeck EnviroTeck Janice Horgos Zero Waste Action Team

Heather Woodbeck Registered Nurses

Ken Jones Citizen Carl Rose Citizen Bruce Hyer Wildwaters

#### Waste

Melody Allaire, Chair Citizen Steve Kozak ReCool

Jim Bailey LitterFree TBay

Lucie Laframboise Citizen Vanessa DeGiacomo CTB Roads Rick Latta CTBLandfill Patrick Fenlon PackPros Plus Lynne Lessard ReCool

Janice Horgos Zero Waste Action Team

Ben Parkes Citizen

#### Water

Carl Goodwin Chair, CTB Environment

Etrick Blackburn Thunder Bay District Health Unit

Bill Bradshaw EcoSuperior Lucie Lavoie EcoSuperior

Matt Cockerton LU Water Resources Association Jason Pilot Sir Winston Churchill CVI

Sarah Cockerton

LU Water Resources Association Michael Ritchie Water Resource Science Student

Tammy Cook Lakehead Regional Conservation Authority

Lakehead University Dr. Rob Stewart

Rebecca Crawford-Bell AguaCare

Gordon VanFleet **Environment North** Don Kmill CTB Environment Jim Vukmanich CTB Environment

# Thank you!

Thank you to the EarthWise Community Partners for their ongoing enthusiasm and support.

# **EarthWise Community Partners**

EarthWise Community Partners are businesses, organizations, or individuals from the community of Thunder Bay that have declared their commitment to support the sustained development of the Community Environmental Action Plan. Partners have signed a Declaration of Commitment. In addition to declaring their support for EarthWise Thunder Bay, Partners may choose to participate in a variety of ways including attending meetings, participating in working groups, sharing experiences and expertise, education and outreach, and providing project volunteers or funding.

Abitibi Bowater

Arclin BayKeepers BFI Canada

Bombardier Transportation

Boreal Solutions
Bruno's Contracting

Citizens Concerned About Pesticides

Confederation College Cook Engineering EcoSuperior

Frank's Alternate Energy Friends of Chippewa

Grapevine Advertising and KnowAboutThunder Bay.com

Home Depot Keen On Green KSGM Architects

Lakehead District School Board Lakehead Region Conservation Authority Lake Superior Binational Forum

Lake Superior Place Lakehead University Litter-Free Thunder Bay Mascarin Collision Centre

MGM Electric Natural Habit

Ontario First Nation Technical Services Ontario Healthy Communities Coalition Ontario Power Generation, T.B.G.S.

Pack Pros Plus PARO

Perrons EcoSolutions ReCool Canada Shelter House St. Joseph's Care Group

Superior Renewable Energy Cooperative

TJB Solar

The Body Mind Centre

Thunder Bay District Catholic School Board Thunder Bay

Chamber of Commerce Thunder Bay Country Market Thunder Bay District Health Unit Thunder Bay Field Naturalists

Thunder Bay Hydro Thunder Bay Observatory Thunder Bay Public Library Thunder Bay Recreational Trails

Thunder Bay Regional Health Sciences Centre Thunder Bay Royal Astronomical Society

Thunder Bay Seniors Newsletter

Trees Thunder Bay
Trout Lake Learning Centre

Union Gas Valhalla Inn

Wardrop Engineering

Wildwaters

Zero Waste Action Team





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CEAP	Community Environmental Action Plan
co <sup>2</sup>	Carbon dioxide
eCO <sup>2</sup>	Carbon dioxide equivalent
СТВ	City of Thunder Bay (Corporation of)
FCM	Federation of Canadian Municipalities
GHG	Greenhouse gas
ICLEI	ICLEI Local Governments for Sustainability
PCP	Partners for Climate Protection
OP	Official Plan
TNS	The Natural Step
VOC	Volatile Organic Compounds
ZWAT	Zero Waste Action Team

Pictures are worth a thousand words. Thank you to Julian Holenstein, Susan Grinstead, and Don Mitchell for providing us with snapshots of the daily life and natural beauty that surrounds us.



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# **EXECUTIVE SUMMARY**

The EarthWise Thunder Bay Community Environmental Action Plan (CEAP) is a living document that has been developed with extensive input from all community sectors. The plan takes an integrated approach to promoting a more sustainable community, recognizing that environment, economy, society, and culture are linked.

Today, communities are expected to show demonstrable progress towards sustainable community planning in return for Federal Gas Tax funds received. Communities are undertaking sustainability planning to address serious, interrelated problems; to increase and build on the benefits they have already seen from implementation of sustainability-related projects; and to avert costly problems such as those related to climate change or inefficient energy/transportation systems by beginning to plan now.

Part One of the plan provides an overview of current thinking around sustainability and climate change. Sustainability is the ability of a system to maintain itself indefinitely, and has to do with how we use the resources around us. It means ensuring that our choices today do not impair the choices available for future generations.

Climate change refers to an enhanced greenhouse effect that is caused by releasing too much greenhouse gas (GHG) into the air, resulting in a warming global climate. As urban centres are major sources of GHGs, municipalities have an important role to play in educating the community about climate change, and reducing GHG emissions locally. The City of Thunder Bay joined the Partners for Climate Protection (PCP) program in 2003, under the Federation of Canadian Municipalities (FCM) committing to a reduction of municipal and community emissions through the creation and implementation of a plan. This Plan recommends reductions of 35% and 10% respectively.

Part Two of this Plan reflects the extensive contribution of the Working Groups in examining local and global issues. Volunteers worked together to set big-picture goals related to the following local issues:

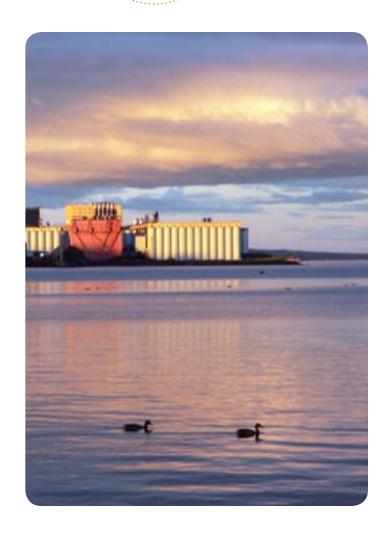
Active Transportation Green Building

Air Land Use
Community Greening Pesticides
Energy Waste
Food Water



The Working Groups that formed around these issues developed objectives, and recommended actions to operationalize them. The adoption of this plan does not require committing to every action. Instead the recommended actions represent the ideas and concerns that were brought forward through this process, and provide guidance as to how to begin making the objectives reality.

Part Three of the Plan outlines the importance of education in affecting change in how we have traditionally gone about our daily lives. It is followed by an implementation framework, and overall governance structure to guide the plan into a sustainable future, allowing us to measure progress and continually reflect best practices. While the City of Thunder Bay will become the keeper of the plan, the plan is multi-sectoral in that many of its actions are aimed at individuals, businesses, institutions, organizations, and the local government.





EarthWise Thunder Bay
Community Environmental Action Plan 2008
...A Living Document
Building a Community Vision For Sustainable Living

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# **PART 01**

# 1.0 BACKGROUND AND PURPOSE OF THE EARTHWISE PLAN

The EarthWise Thunder Bay Community Environmental Action Plan (CEAP) integrates the four pillars of sustainability — environment, economy, society and culture - for the first time in Thunder Bay, with the goal of focusing the energy, involvement and collective wisdom of the community in securing local environmental health, and improving the social and economic well-being of future generations.

The plan takes a comprehensive and integrated approach, recognizing environment, economy, society, and culture are linked. The first section (Pgs. 16-26) of the plan provides an overview of current thinking around sustainability and climate change, explaining the theoretical basis from which the plan was developed. The second section (Pgs. 28-72) reflects the extensive contribution of the Working Groups in examining local and global issues, and creating goals, objectives, and proposed actions leading to greater community sustainability and reduced greenhouse gas emissions. This is followed by an implementation framework in part three (Pgs. 74-80), and overall governance structure to guide the plan into a sustainable future, allowing us to measure progress and continually reflect best practices.

While the City of Thunder Bay will become the keeper of the plan, the plan is multi-sectoral in that many of its actions are aimed at individuals, businesses, institutions, organizations, and the local government. There is a role for everyone in implementation and we hope that the citizens of Thunder Bay will help to achieve the vision of a cleaner, greener, more beautiful and proud Thunder Bay. A healthier environment results in healthier people too! This plan is a living document that serves as a first step in what promises to be an exciting and rewarding journey.

### **About EarthWise**

The idea for a comprehensive Community Environmental Action Plan (CEAP) began in 2004. Two local non-governmental organizations: EcoSuperior Environmental Programs and the Zero Waste Action Team (ZWAT) made a deputation to City Council citing a number of existing initiatives that a CEAP would support and expressing a desire to have the City establish such an initiative. City Council of the day agreed, and a position was created for the CEAP Coordinator. EarthWise Thunder Bay came into being thereafter, with the official creation of a Steering

Committee and Terms of Reference, and a launch of the partnership was held in June of 2005, with Dr. David Suzuki as a guest speaker, and a kick-off tree planting event at Chippewa Park. EarthWise Thunder Bay was created as a partnership between the City of Thunder Bay, and the broader community, encompassing the residential, institutional, commercial, and industrial sectors (ICI). The purpose of the partnership was to work together to create and implement a CEAP, in accordance with the Partners for Climate Protection Five Milestone Framework. Public engagement and participation throughout the EarthWise process has been actively sought and valued.

The EarthWise Steering Committee adopted the Melbourne Principles for Sustainable Communities as their guide. These principles were tabled at the UN World Summit on Sustainable Development in August 2002, in Melbourne Australia. They provide an excellent approach to community sustainability and have been endorsed by civic leaders worldwide and recognized by Environment Canada.

# **Melbourne Principles for Sustainable Communities**

- 1. Provide a long term vision for the city based on sustainability, intergenerational, social, economic, and political equity, and individuality.
- 2. Achieve long term economic and social security.
- 3. Recognize the intrinsic value of biodiversity and natural ecosystems and their protection and restoration.
- 4. Enable our community minimize its ecological footprint.
- 5. Build on the characteristics of ecosystems in the development and nurturing of a healthy and sustainable city.
- Recognize and build on the distinctive characteristics of our city including the human and cultural values, history and natural systems.
- 7. Empower people and foster participation.
- 8. Expand and enable cooperative networks to work towards a common sustainable future.
- 9. Promote sustainable production and consumption, through appropriate use of environmentally sound technologies and effective demand management.
- 10. Enable continual improvement, based on accountability, transparency and good governance.



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Building a Community Vision For Sustainable Living

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# The Partners for Climate Protection Program (PCP)

The Partners for Climate Protection program is a joint program of the Federation of Canadian Municipalities (FCM) and ICLEI Governments for Local Sustainability (ICLEI). It is designed to assist municipalities in achieving significant reductions of local greenhouse gas (GHG) emissions. Fulfillment of the PCP program requires the completion of the five milestones (Table 1).

Table 1
The PCP Five Milestone Framework

Milestone	Achievement	Status
Milestone 1	create a GHG emissions inventory and forecast	completed December 2007
	Set an emissions reduction target	this document
Milestone 3	Develop a local action plan (CEAP)	this document
Milestone 4	Implement the plan	upcoming
Milestone 5	Monitor progress and report on the results	upcoming

## The Process

The process of developing this document, and arriving at the goals, objectives, and recommended actions herein, was the result of significant public engagement and participation. Since 2005 the EarthWise Steering Committee, CEAP Coordinator, and Community Partners, along with all the Working Group volunteers have been working together to create this plan, with participation from over 500 stakeholders.

Over the winter and spring of 2008, the eleven working groups presented their draft sections of the plan to the public and received comments and feedback on their ideas. The EarthWise website (www.earthwisethunderbay.com) has provided a forum for continued public feedback, where people can submit comments through the feedback form directly to the CEAP Coordinator. EarthWise has also been promoted throughout the City through public speaking engagements, advertising campaigns, posters, brochures, and public open-houses. In addition to public participation, contacts were made with other municipalities and organizations to identify and review best practices. Numerous other community plans were reviewed and

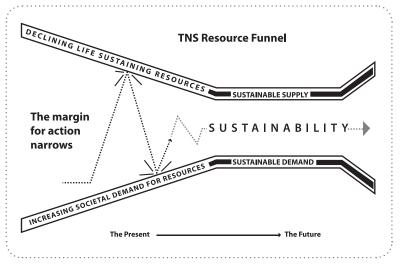
# 2.0 SUSTAINABILITY AND CLIMATE CHANGE IN THUNDER BAY

# Systems Thinking and Sustainability

Sustainability has many interpretations. From a systems perspective, it is the ability of a system to maintain itself indefinitely. Operationally, sustainability has to do with how we use the resources around us. It means ensuring that our choices today do not impair the choices available for future generations. A simple metaphor that helps to visually illustrate the need for sustainability is shown in Figure 1. This funnel demonstrates two converging trends that are based on documented evidence and scientific research: the natural systems of the earth are deteriorating at an increasing rate, and at the same time, population and consumption are rising on a global scale. These two trends are like the two sides of a funnel converging upon each other, and the margin for action is narrowing. There is still time to have a positive impact, but because the world we live in is so complex, no one knows what irreversible damage has already been done.

In an area such as Northwestern Ontario, rich in resources, it is easy to forget that resources are not limitless, and that we must manage our activities in a respectful way. This means we must begin and continue to make decisions based on long term goals instead of focusing on short term gains. The most famous definition of sustainability comes from the Brundtland Commission and its report "Our Common Future" which

Figure 1
The Natural Step Resource Funnel



#### Better Safe Than Sorry: The Precautionary Principle

The precautionary principle provides guidance for protecting human health and the environment in the absence of scientific certainty. In some countries it is a general principle of law.

The 1998 Wingspread Conference defined it as follows: When an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically.

The City of Thunder Bay recognizes the precautionary principle in the Corporate Policy entitled "Environment/Community Sustainability", approved by Council in 2005.



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was released over twenty years ago — in 1987: "Sustainable development is the ability of people to meet the needs of today without compromising the ability of future generations to meet their own needs."

Scandinavian countries have been the leaders in sustainable communities. In the late 1980s a group of Swedish scientists outlined four conditions of sustainability, and one of them, Dr. Karl-Henrik Robert, created a framework for sustainability based on them. He called it the Natural Step (TNS). The Natural Step fundamentally advocates that how we do things is as important as what we do, and helps to lay out a process for developing sustainable communities. The process is centred around the idea of public engagement and consultation, resulting in a number of approaches to achieving a common vision.

Originally, sustainable development was presented as the overlap between economy, society, and the environment. This led to a tendency to view the economy as equal to the environment, resulting in an attempt to balance economic and environmental concerns, instead of integrating them (Figure 2). Today we recognize that the economy and society can only function within a larger environmental system, and are limited by the health of that natural environment (Figure 3). While the consideration of society and economy are important, most important is the health of our environment which sustains all life on this planet.

# The Ontario Roundtable on the Environment and Economy defined a sustainable community as one which:

- Recognizes that growth occurs within some limits and is ultimately limited by the carrying capacity of the environment
- 2. Values cultural diversity
- 3. Has respect for other life forms and supports biodiversity;
- Has shared values amongst the members of the community (promoted through sustainability education)
- Employs ecological decision-making (e.g., integration of environmental criteria into all municipal government, business and personal decision making processes)
- Makes decisions and plans in a balanced, open and flexible manner that includes the perspectives from the social, health, economic and environmental sectors of the community
- 7. Makes best use of local efforts and resources (nurtures solutions at the local level)
- 8. Uses renewable and reliable sources of energy
- 9. Minimizes harm to the natural environment
- Fosters activities which use materials in continuous cycles.
   And, as a result, a sustainable community
- 11. Does not compromise the sustainability of other communities (a geographic perspective)
- 12. Does not compromise the sustainability of future generations by its activities (a temporal perspective)

# **Climate Change**

Concern and awareness of climate change have been steadily growing for the last two decades. In 1994 the United Nations Framework Convention on Climate Change (UNFCCC), an international environmental treaty produced in 1992, with a membership of 191 countries, was enacted as an overall framework for cooperation in addressing the issue of climate change. Climate change refers to an enhanced greenhouse effect that causes the overall temperature of the earth to rise. The greenhouse effect itself is a natural phenomenon whereby heat is trapped within the earth's atmosphere by greenhouse gases that act like a blanket. Without this natural greenhouse effect, the Earth would be uninhabitable. However, too much greenhouse gas (GHG) is not a good thing either. Currently, we are releasing too much GHG into the air, causing an enhanced greenhouse effect, or climate change; we are making the blanket thicker.

Recent reports from the Intergovernmental Panel on Climate Change (IPCC), a United Nations panel regarded as the international authority on the issue of climate change, have concluded that anthropogenic (human caused) greenhouse gas concentrations have "very likely" been responsible for the observed increase in globally averaged temperatures since the mid 1900s, and that "it is extremely likely that human activities have exerted a substantial net warming influence on climate since 1750." The panel, which represents consensus in the scientific community defines "very likely," and "extremely likely," as indicating probabilities greater than 90%, and 95% respectively.

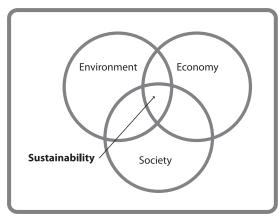


Figure 2: Traditional View of Sustainability

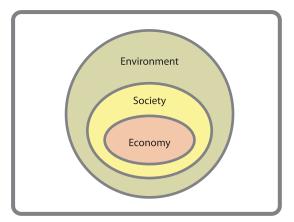


Figure 3: Systems View of Sustainability



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Climate change has been linked to increasingly severe weather and other climatic changes, such as thawing permafrost and the spread of invasive species. In Northwestern Ontario records show increases in temperatures, increase and change in the nature of precipitation, and increased disturbance by fire and insects. As urban centres are major sources of GHGs, municipalities have an important role to play in educating the community about climate change, and reducing GHG emissions locally. The City of Thunder Bay joined the Partners for Climate Protection (PCP) program in 2003, a joint program of the Federation of Canadian Municipalities (FCM) and ICLEI Local Governments for Sustainability, committing to a reduction of municipal and community emissions through the creation and implementation of a plan.

# Thunder Bay's Local Greenhouse Gas Emission Profile

Thunder Bay, located at the head of Lake Superior, is the tenth largest city in Ontario and the largest metropolitan centre in Northwestern Ontario. The population of Thunder Bay is 109,140 (2006 Census), and is made up of a diverse multicultural base. Thunder Bay's economy has traditionally been resource-based, with forestry, pulp, and paper playing a significant role. Over the last five years significant investments have been made in the knowledge based economy, making it a larger contributor to the regional economy.





Becoming more sustainable has obvious environmental benefits, but it also has other social, cultural and economic benefits. These include reduced monetary costs, creation of a stronger sense of place and community, and the encouraging of local people to think in new ways and diversify our economy. As the global economy shifts toward the clustering of knowledge-based industries and enterprises, a community's competitive advantage is often directly related to its environmental performance. The quality of life in cities is becoming a prime determinant of investment decisions and, hence, the attraction of new residents and workers.

In December of 2007, a local GHG emissions inventory was completed by ICLEI Energy Services, a consulting arm of the international organization ICLEI Governments for Local Sustainability. The purpose of the GHG inventory is to provide a baseline against which the community can measure progress towards the reduction of GHGs. The baseline inventory expresses GHG production as the number of tonnes of carbon dioxide equivalent ( $eCO^2$ ) produced by energy use and waste production in the community. Carbon dioxide equivalent is a commonly used measure that expresses all GHGs as an equivalent amount of carbon dioxide. (For example, nitrous oxide ( $N_2O$ ) is 310 times as potent as carbon dioxide in causing the greenhouse effect. Therefore, one tonne of  $N_2O$  is equivalent to 310 tonnes of  $CO^2$  and equals 310 tonnes of  $eCO^2$ ). The reduction target that the community chooses is expressed as a percentage reduction from this baseline emission.

The inventory captured emissions from all areas of local government operations and from most activities in the wider community. The inventory excludes emissions from certain sources such as agriculture and air traffic in accordance with the PCP protocol. This is because these emission sources are typically beyond a local government's control and these sources are included in provincial and national inventories.

Thunder Bay has chosen a reduction target of 35% for the Corporation of the City of Thunder Bay, and 10% for the community below the 2005 baseline determined by ICLEI. This target was recommended by the Energy Working Group as being achievable as a first goal, and falls within the ICLEI recommendations.

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Table 2 2005 Community Energy Use and GHG Emissions by Sector (tonnes)

Sector	GHGs (tonnes)	GHGs (%)
Residential	295,995	21%
Commercial	130,777	9%
Industrial	499,304	36%
Transportation	443,090	31%
Solid Waste	47,800	3%
Total	1,416,966	100%

Table 3
2005 Community Energy Use and GHG Emissions by Source (tonnes)

Energy Type	Total Use	GHGs (tonnes)	GHGs (%)
Electricity (kWh)	1,043,756,539	231,714	16%
Natural Gas (m³)	369,288,428	694,286	50%
Diesel (L)	50,397,761	137,616	10%
Gasoline (L)	127,923,982 L	302,142	21%
Propane	2,177,222 L	3,331	0%
Waste		47,800	3%
Biofuels		77	0%
Total		1,416,966	100%

Table 3 provides a summary of community emissions produced by each emission source. Natural gas produced the largest portion of emission in Thunder Bay in 2005 (50%), followed by gasoline (21%), electricity (16%), diesel (10%) and solid waste (3%).

# **Corporate (Municipal) Emissions Profile**

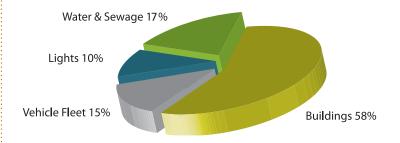
The corporate emissions profile quantifies emissions from buildings, vehicle fleets, streetlights and traffic signals, water and wastewater treatment facilities, and waste produced by municipal operations. The local government module is reported in more detail than the community module. This is because local governments have direct control over their own operations and it is therefore the area in which they are most likely to be able to directly effect major emissions reductions, and can act as a leader within their own community. With more detailed information, local governments can better determine where the greatest opportunities for improvement lie. In 2005, the City of Thunder Bay spent approximately \$9,441,050 on energy costs. Local government operations for the City of Thunder Bay produced approximately 30,538 tonnes of greenhouse gases in 2005. This accounts for approximately 2.2% of the emissions produced by the community as a whole.

Table 4 provides a summary of energy use, energy costs and GHG emissions by area of local government operations. In 2005, 58% of local government emissions were produced by the buildings sector, the water and sewage sector produced 18%, 15% was produced by vehicle fleets, 10% was produced by streetlights. Corporate waste is not tracked separately and is therefore included in the community emissions profile as part of the community waste. An illustration of the contribution of each area of operations to total GHG emissions is provided in Figure 4.

Table 4
Energy Costs and GHG Emissions by Area of Operations

Sector	Total Cost (\$)	Total GHGs (t)
Buildings	5,155,535	17,675
Vehicle Fleet	1,407,701	4,652
Traffic, Street and Other Outdoor Lights	1,096,659	2,959
Water and Sewage	1,781,156	5,252
Total	\$9,441,051	30,538

Figure 4
Local Government GHG Emissions by Area of Operations





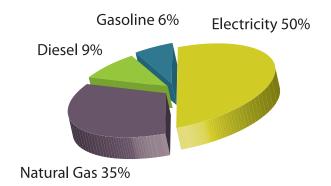
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Table 5
Energy Costs and GHG Emission by Source

Energy Type	Total Use	Total Cost (\$)	Total GHG (t)
Electricity (kWh)	68,342,799	5,637,476	15,172
Natural Gas (m3)	5,690,631	2,392,291	10,699
Diesel (L)	1,007,470	703,067	2,751
Gasoline (L)	811,143	708,216	1,916
Total	•	\$9,441,050	30,538 t

Table 5 provides a breakdown of local government emissions and costs by fuel type. In 2005, 50% of local government emissions were caused by electricity use, 35% were caused by natural gas use, 9% of emissions were caused by diesel and 6% were caused by gasoline. Figure 5 illustrates the breakdown of local government emissions by fuel type. Waste created by the Corporation of the City of Thunder Bay is included in the community solid waste total, as it is not collected separately.

Figure 5
Local Government GHG Emissions by Source







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# PART 02 Working Groups – Focus on Issues

Thunder Bay occupies a unique place in the Canadian landscape. The city sits alone at the head of the largest freshwater lake in the world, surrounded by abundant natural resources, and resting on some the oldest and most stable of geological formations. It is an ideal location to model sustainable behaviours, and build a healthy community in tune with its natural environment. Achieving sustainability in this northern climate will require many institutional changes: the lens through which we make our decisions, the criteria we use to judge our accomplishments, and the time frames in which we plan. Most of all, however, it will require significant rethinking by individuals and the community as a whole. Education, and the building of community relationships are key to this transformation. We must work to remove the barriers that prevent behaviours consistent with sustainability.

It is amazing what can come about when all the different stakeholders sit at the table and work together towards a common vision. Through the EarthWise process, eleven "Working Groups" developed sections of the EarthWise plan based on their experiences and interests. These working groups took on air quality, active transportation, community greening, education, energy, food security, green buildings, land use planning, pesticides, waste, and water. Many Working Groups were made up of members who were new to one another, but built a strong relationship as the process developed. Some participants had years of experience in their field, while others were motivated by their interest in the subject. Other groups were made up of people who had been working on the issue together for a long time — as in the Food Action Network who developed the food section of the plan.

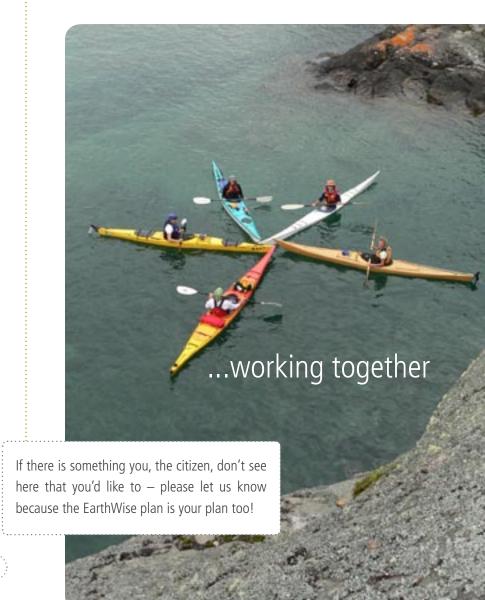


Everyone shared an interest in their topic and a commitment to working together to identify ways our community can sustain itself in the long run. The working groups also took their ideas out to the larger community. Since January, every group has invited public input into its work and has taken the feedback received to strengthen this document and ensure it reflects the interests of our citizens.

There are overlapping recommendations in some sections. Because of the interconnectedness of the environment, one positive action towards meeting a goal has a chain of effects that may help to work towards other goals for environmental protection. For example taking public transit to work every day would decrease GHG emissions, reduce air pollutants, result in health benefits, create less wear and tear on roads, and extend fossil fuel resources.

Each Working Group section began with the development of an overarching goal. The goal then guided the further development of objectives which each group has suggested potential ways of operationalizing, through the recommended actions. The adoption of this plan does not require committing to every action. Instead the recommended actions represent the ideas and concerns that were brought forward through this process, and are intended to provide guidance as to how to begin making the objectives reality.

As we work to achieve the goals and objectives envisioned by the collective wisdom of Thunder Bay's citizens, we will be looking for more participation, feedback, and ideas.





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# 1.0 ACTIVE TRANSPORTATION

#### Goal

To increase the personal and environmental health of local residents and the area, provide economic benefits, and reduce greenhouse gas emissions, through leadership, planning, and partnerships; making Thunder Bay a safe, healthy, and environmentally friendly community where active transportation is a key component of an integrated transportation system that links where we all live, work, and play.

# Why it Matters.....

Active transportation includes human-powered forms of travel such as walking, cycling, in-line skating, skate boarding, cross-country skiing, canoeing and kayaking. Active transportation has many benefits to both individuals, and to society at large, and many of these benefits also have a positive economic impact.

Currently 6.6% of Canadians walk to work while 1.2% bicycle. Comparatively, in Sweden, walking accounts for 39% of trips while cycling accounts for

# **Active Transportation Vision**

Through leadership, planning, and community partnerships, Thunder Bay is a healthy, accessible, environmentally sustainable community, where active transportation is a key component of safe, innovative, integrated transportation system that links where we all live work and play.



10%. Census Data for 2006, states that workers under the age of 25 in Thunder Bay walk to work only 10.2% of the time, and bike 3.9% of the time. The median commuting distance is only 4.7 km. These rates decline in older age groups. In Canada, a significant percentage of motor vehicle trips are of a distance that is easy to cycle or walk. Improving facilities for cycling and walking is the best way of increasing the numbers of users, and such expenditures are popular and often requested in Thunder Bay. Research shows that Canadians are very willing to walk or cycle more, given appropriate facilities, and that 82% of Canadians support government spending to create dedicated bicycle lanes and paths. The 2007 Citizen Survey conducted for the Corporation of the City of Thunder Bay found that 75% of residents supported spending on recreational trails as a capital project.

The social, economic, and environmental benefits of active transportation are many and include reduction in costs related to road construction, repair and maintenance; reduced GHG emissions and health care costs; reduced costs due to increased road safety; and reduced air, and water pollution. Positive economic impacts include bicycle tourism, and increased retail sales in pedestrian friendly areas. Property values also increase along greenways and trails.

Safety concerns are one of the main reasons local Thunder Bay citizens do not cycle more. There is a lack of safe active transportation infrastructure available. Other major issues of concern recognized in Thunder Bay are the absence of commuter routes for cyclists, and a lack of connectivity between recreational trails. Thunder Bay has a number of wonderful recreational trails that are heavily used, but often require that families drive to them to gain access. Some local neighbourhoods have no sidewalks and new subdivisions lack walkable connectivity to daily amenities. This infrastructure is needed to create a walkable community.

Thunder Bay is by no means unique in this situation, as the trend has been car-focused transportation planning across the country. People are becoming more interested in active transportation and would like related infrastructure upgraded and increased. Challenging this is the significant infrastructure expense, difficulty in finding/acquiring land, and limited funding that competes with other priorities. One of the biggest challenges is that we still love our cars!

In 2007 the City of Thunder Bay began a process to create an Active Transportation Plan based on a new collaboration with the City Engineering Division as the lead, and the Parks Division as a partner. An advisory committee has assisted in the development of this plan, and the following vision, goals, objectives and recommended actions.



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# **Objectives and Recommended Actions**

# 1.1 Improved safety for people who are engaged in active transportation activities.

- Create a safe shared use trail system using Provincial and Federal safety guidelines.
- Develop distinctive markings for road crossings.

# 1.2 Increase the number of people walking, biking, or traveling by other human-powered means.

- Promote the health benefits of using Thunder Bay's active transportation system
- Ensure trail system is user friendly, meets the needs of all citizens, and complies with regulations of Accessibility for Ontarians with Disabilities Act, 2005 AODA
- Comply with City of Thunder Bay's Clean, Green and Beautiful Policy.

# 1.3 Develop infrastructure that supports active transportation.

- Provide route signage and orientation markings (wayfinding).
- Link the cycling and transit systems, and make trails and routes convenient to all neighborhoods.
- Link the commuter system with the trail system.
- Create and install bike racks, benches, end of trip facilities, and secure storage.
- Strategically develop the system, including expansion into new developments, maintenance and improvements.

# 1.4 Develop policies that support active transportation.

• Take a holistic approach to corridor management in transportation planning

# 1.5 Develop community partnerships committed to implement a dynamic and sustainable Active Transportation plan/strategy.

- Create a long term dynamic plan with community input and partnership support.
- Secure ongoing financial support/commitment from the City of Thunder Bay.

Principles of Thunder Bay's Active Transportation System, identified by the CTB Active Transportation Advisory Committee

Safety
Promotion & Education
Inclusive/Diversity
Connectivity/Access
Aesthetics
Supportive Amenities/Facilities
Sustainability

### WHAT CAN I DO?

- Opt for active transportation over your car whenever possible.
- Familiarize yourself with the rules for biking or other active transportation pursuits.
- Always remember to give pedestrians the right of way.
- Always wear a helmet or appropriate personal protective equipment when participating in active transportation.
- Build active transportation into your lifestyle!

"Every time I see an adult on a bicycle, I no longer despair for the future of the human race."

H.G. Wells





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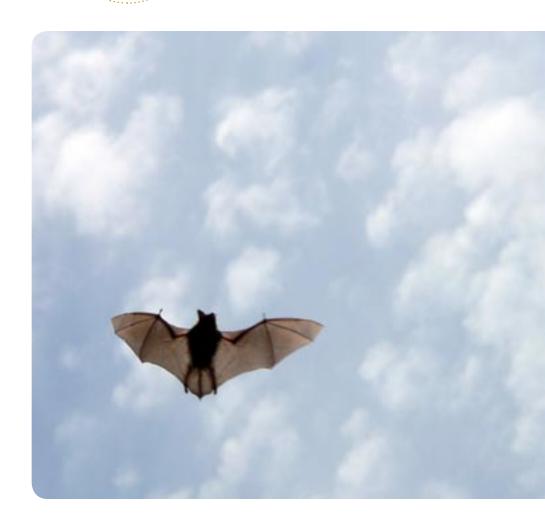
# 2.0 AIR QUALITY

### Goal

To improve outdoor and indoor air quality by reducing air pollutants and greenhouse gas emissions.

# Why it Matters...

Air pollution is of significant concern in Ontario. Provincially, key air contaminants such as ozone (O3), fine particulate matter (PM2.5), nitrogen dioxide (NO2), carbon monoxide (CO), sulphur dioxide (SO2), and total reduced sulphur compounds (TRS) are generated by many sources. These sources include industrial stationary sources such as factories, power plants and smelters; mobile sources such as cars, buses, trucks, planes, marine vessels, and trains; residential sources such as household heating units, chemical use, unconfined burning; and natural sources such as forest fires, windblown dust, and biogenic emissions from vegetation. Air pollution is not restricted by lines on a map, and can travel from province to province and country to country, affecting areas far from their original sources. The release and removal of air pollutants from the atmosphere are ongoing processes. Pollutant levels are affected by source strengths, sunlight, moisture, clouds, precipitation, geography, and weather conditions.



Over the years, significant improvements have been made to pollution-generating equipment and processes, new abatement technologies have been developed, and Ontario's air emissions regulations have been strengthened. Although new technologies and regulatory requirements have made measurable improvements in emissions in Ontario, ongoing diligence is required.

Air pollution can also affect us in our homes or places of work, stemming from sources such as air fresheners, cigarette smoke, or materials off-gassing toxics like volatile organic compounds (VOCs).

### **Local Context**

As the largest community in Northwestern Ontario, the City of Thunder Bay is the most significant contributor of air emissions in the region. Compared to other cities of similar size in Canada, Thunder Bay's overall air quality is among the cleanest. This is primarily due to a smaller number of industrial point sources and a lack of major transportation routes found in larger urban centres, such as those in southern Ontario. The Ministry of Environment's Report on Air Quality for 2006 found Thunder Bay's Air Quality Monitoring Station to have the best results of all 38 stations across the province. However, local air quality is still an ongoing concern for human and environmental health.

As a community, it is our collective responsibility to protect our air quality as much as possible. Some local industries have made significant emission reductions. This, combined with proactive community initiatives, has resulted in measurable reductions of some priority toxic emissions over the last decade. Having good air quality not only benefits our health, but can be an economic asset as well by making Thunder Bay an attractive place to move to and to invest in.

As a major City located on the shores of Lake Superior, Thunder Bay must play a leadership role in promoting activities which minimize the community's adverse impact on air quality





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# **Objectives and Recommended Actions**

- 2.1 Educate the community about the impacts of air pollution, and how to reduce personal contributions to air emissions.
- Create an anti-idling education program.
- Develop a woodstove education program.
- Continue to support EarthWise Community Partners in running education campaigns focused on preventing the use of burn barrels and other open-burning.
- Continue to support and promote EarthWise Community Partners that develop and deliver programs which help to educate the public on threats to air quality (both indoor and outdoor), on the impacts on children's health and long term effects, and on natural source air pollutants such as forest fires and radon.

# 2.2 Assess and report on local air quality.

- Establish a standing group on air quality in Thunder Bay.
- Work with community partners to undertake a baseline assessment of air quality in Thunder Bay.
- Work with community partners to ensure public accessibility and reporting on air quality and air-related health issues in Thunder Bay.
- 2.3 Improve air quality locally by adopting reduction targets, and activities tailored by sector (Residential, Municipal, Industrial, Commercial, Institutional)
- Promote increased use of public transit and alternative modes of transportation.
- Examine the impacts of the transportation sector in general.
- Promote reduced emissions of air pollutants by sector through mentoring.
- 2.4 Ensure that the importance of air quality in North Western Ontario is made clear to those wishing to do business in the area. While it is critical to be 'open for business', it can't be at the cost of human health and the environment.
- Investigate the development of a comprehensive framework, based on the precautionary principle, that can be used to assess new developments (and alternatives) prior to those developments obtaining permits to do business.

#### WHAT CAN I DO?

#### Indoor

- Avoid the use of chemical cleaning products, bug sprays, or other volatile chemicals. Use environmentally friendly cleaning products such as soap and water, vinegar, baking soda, and good old-fashioned elbow grease instead.
- Use low/no-VOC paints (volatile organic compounds) and avoid the use of vinyl in building materials such as flooring.
- Manually adjust your thermostat or invest in a programmable thermostat to avoid temperature extremes in winter (heating) and summer (air conditioning).
- Never smoke indoors.
- Dust with damp cloth, especially around electronics.
- Use safe renovation practices and wear personal protective equipment (lead, asbestos etc.).

# Outdoor

- Never burn garbage, plastics, paper with coloured inks, or treated or painted wood.
- Turn your car off if it will be parked and idling longer than ten seconds.
- Use active transportation, public transit, or carpool whenever possible.
- Make environmentally-conscious purchasing decisions whenever possible, such as fuelefficient or hybrid vehicles and certified emissions tested wood stoves.

One generation plants the trees, another gets the shade

Old Chinese Proverb



### 3.0 COMMUNITY GREENING

#### Goal

To protect, improve and maintain the biodiversity, ecosystems and the well-being of the urban and rural ecology of Thunder Bay.

# Why it Matters...

Urban Forestry is the sustained planning, planting, protection, maintenance and care of trees, forests, greenspace and related resources in and around our communities. Trees on public and private lands beautify our community, increase civic pride and enhance our sense of well-being. Every year, Thunder Bay loses more than 400 trees on public land due to age, disease and injury, with more than 10,000 empty spots waiting for trees on city boulevards. Urban trees exist in a difficult environment; lack of growing space above and below ground, contaminated and compacted soils, de-icing salt and the physical damage caused by trenching, lawn mowers, people and cars. Suburban development and large scale, unregulated tree cutting on private land threaten the biodiversity and ecology of our rural forests. Climate Change has resulted in drought conditions within the Lake Superior Watershed and our forests are increasingly threatened by forest fires and pest infestations.

Over the past decade Trees Thunder Bay, a trees advocacy group, has raised political and public awareness of the need to protect and increase our Urban Forest. A Tree Boulevard Bylaw prepared by the City Forester was approved by Council in 2005. The City has increased landscaping requirements for new development and road reconstruction and provided more funding for trees on public land. In 2006, the City received Green Streets funding to assist with the establishment of a Tree Stewardship Program. Despite these efforts, Thunder Bay is estimated to have less than 10% tree canopy, far below the 25% target used by many municipalities

Trees are "green infrastructure." Trees raise property values, have monetary value, clean the air and store carbon, reduce soil erosion, provide shade, act as wind and sound barriers and are home to a wide variety of birds, insects and animals. Trees produce enough oxygen on one acre of land for 18 people every day! A study of Toronto's urban forest using the "Urban Forest Effects" or UFORE model determined that carbon storage, sequestration and avoidance, pollution removal and energy savings was equivalent to over \$8.5 million dollars in 1998.



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# **Objectives and Recommended Actions**

- 3.1 Develop, implement, and provide sustained funding for a comprehensive Urban Forest Master Plan that integrates people, trees, environment and their continual change and interaction with each other.
  - As part of the Urban Forest Master Plan, determine and prepare for the impacts of climate change and infestations on the urban and suburban forests.
  - Monitor and quantify GHG emission reductions that are achieved through greening initiatives.
  - Review policies related to the tree-planting component of roadwork.
- 3.2 Use best management practices to develop and maintain an inventory of trees.
  - Identify and protect heritage trees.
  - Protect and enhance the survival rate of existing trees.
- 3.3 Increase green space within the community.
  - Sustained funding for the coordination of the Tree Stewardship Program.
  - Integrate the identification, restoration, and protection of Environmental Protection Areas and the concept of biodiversity and ecosystem function into the City's Official plan, planning process, and documents.
  - Consult with all sectors of the community to determine the feasibility of regulating tree cutting on private land in rural areas of the municipality.

### 3.4 Creation of a Biodiversity Action Plan that includes aquatics and wetlands.

- Restore and protect significant areas identified through the plan.
- Increase community awareness and support for the protection and enhancement of the biodiversity and ecology of the Urban forest, waterways and corridors.

#### WHAT CAN I DO?

- Naturalize your yard.
- Integrate perennials into annual flower beds and use more native species.
- Encourage the use of native trees and shrubs for all projects undertaken or approved by the City.
- Plant more trees

# 4.0 ENERGY

#### Goal

To reduce greenhouse gas emissions through the wise use of energy, and to promote the transition to a carbon-neutral future.

# Why it Matters...

Energy is a critical need for those of us who live and work in Thunder Bay and we obtain a significant portion of our energy by burning fossil fuels which produce greenhouse gas (GHG) emissions. The ICLEI Report determined that our community produced approximately 1,416,966 tonnes of GHGs in the baseline year of 2005. A breakdown of GHG emissions can be seen by sector and by source in Figures 8 and 9 respectively.

In Thunder Bay, per capita GHG emissions were an average of 13.0 tonnes/person (tpp) in 2005. Canada is the third highest GHG emitter in the world per capita after Australia, and the United States. We emit twice the amount per capita of European countries and at least ten times that of countries such as India.

Global efforts are underway to reduce the production of GHGs, and there are many opportunities to create new employment in this transformation.

Figure 6
Thunder Bay GHG Emissions by Sector

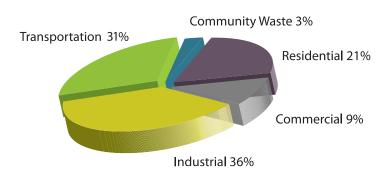
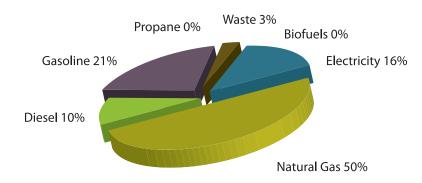


Figure 7
Thunder Bay GHG Emissions by Source





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For example, Germany has created over 14,000 jobs while building their renewable energy industry. New building energy efficiency standards are another important part of improving energy efficiency and growing our economy. Renovations and retrofits of existing buildings create more jobs than new construction while retaining the energy used initially.

The 2007 Thunder Bay Citizen's Survey found that 86% of respondents were in agreement with environmentally-friendly green energy projects as priorities for major capital projects. The cost savings that are possible with energy efficiency will become more important for businesses and individuals in the future as energy costs increase. Larger industries and institutions are becoming more energy conscious. Abitibi-Bowater, Confederation College and Lakehead University are three EarthWise community partners who have realized significant economic and ecological pay-back on their conservation programs. Thunder Bay Hydro, Union Gas, and EcoSuperior Environmental Programs all have provided homeowners and businesses with help and rewards to reduce their energy costs and GHG emissions, and provide education on energy conservation measures that can be implemented at low cost and with simple lifestyle changes. Our high use of natural gas and electricity are due in part to space heating needs here in the north. Using more efficient means of home heating, such as passive solar or renewable technologies, as well as better insulation so less heat is lost, are two major steps that can be taken to reduce these high energy needs and improve future energy security.

While we require energy for electricity, heat, and transportation, we can make changes that allow us to wisely use far less of it. We can plan for the future and work towards a carbon neutral energy profile, with a net GHG emission level per person of 0. The City of Thunder Bay is ready to adopt an emissions target through this plan, as part of the Partners for Climate Protection Program.

The ICLEI Report determined that the sectors in the community producing the largest amounts of GHG emissions are the transportation and industrial sectors. Measures to reduce GHG should include all sectors but focus on the high-emitting sectors.

The ICLEI Report recommends that the City address the following three measures first.

- Expand energy conservation measures in the commercial, residential and industrial sectors in both existing and new construction, with a major focus on retrofitting old buildings and designing new buildings to higher standards.
- Promote the use of alternative vehicles and fuels in the transportation sector.
- Implement land use planning strategies to avoid transportation emissions related to new development.

"The Stone Age didn't end for lack of stone, and the oil age will end long before the world runs out of oil."

Sheik Ahmed Zaki Yamani



# **Objectives and Recommended Actions**

# 4.1 Reduce total energy usage by 35 % within the Corporation of the City of Thunder Bay, and 10% within the community at large, below 2005 levels by 2017.

- The City will adopt LEEDS Gold Standards for new buildings, and sign on to the Sustainability 2030 challenge
- The City will establish Energy Efficiency Standards for major facility renovations
- Thunder Bay Hydro and Union Gas will develop ways to show consumers their associated GHG production, and help them develop strategies to reduce it.
- The City and EcoSuperior will develop a business specific "Energy Manual," to help small businesses be more aware of their power consumption and programs available to conserve energy
- The City of Thunder Bay will appoint a Municipal Energy Conservation Officer.

# 4.2 Reduce fossil fuel generation by adopting practices that reduce electricity demand during peak periods.

- Ontario coal-fueled generation will be subject, under Ontario Regulation 496/07, to a cap on the amount of GHG production beginning with reductions in 2009. In 2011 the GHG emissions from Ontario coal plants will have been reduced to 11.5 million tones a two-third reduction from 2007 levels. The Thunder Bay Generating Station is included in this legislation.
- Thunder Bay Hydro will continue plans to implement smart meters to allow electricity consumers to obtain savings on their electrical bill if they shift power use to off peak hours

### 4.3 Encourage the development and use of renewable energy technologies.

- EarthWise and its partners will develop and maintain a registry of green energy projects within the City. By 2017 there will be at least 100 home and small business renewable energy projects within the city and 20 solar hot water heaters
- Reduce the GHG coefficient for electricity by 10% by 2017, by increasing non-carbon power generation and purchasing green power
- The City will research international initiatives and adopt two or more of a number of world-class standards to reduce carbon based energy use.



...A Living Document

Building a Community Vision For Sustainable Living

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- The City will encourage the development of large renewable energy projects such as wind and solar installations
- Thunder Bay Hydro will develop a template and process to allow 'behind the meter' alternative energy.
- The City will work with local businesses to provide information on the installation of alternative technologies. This will include ways to calculate GHG reductions and calculate payback
- Confederation College will develop a certificate program to train students to implement renewable and energy efficient technologies

#### WHAT CAN I DO?

- Turn off lights and electronic equipment when finished.
- Get rid of phantom loads by using a power bar and shutting it off when equipment is not in use.
- Get a home energy audit to identify the best way to reduce your energy use
- Make use of a solar-wind dryer: your clothesline!





### **5.0 FOOD**

#### Goal

To build a more just and sustainable local food system in Thunder Bay that promotes social justice and supports local production, storage, processing, sale and distribution of food.

### Why it Matters...

Community Food Security exists when all community residents obtain a safe, personally acceptable, nutritious diet through a sustainable food system that maximizes healthy choices, community self-reliance, and equal access for everyone. (Dietitians of Canada, 2007)

Access to safe, nutritious and affordable food affects the health and well-being of individuals and our community. Where and how this food is produced, processed and distributed impacts our local economy and the environment.

Seventeen percent of Thunder Bay residents live in poverty, and food bank use is on the rise. People living in poverty are the first and most severely affected by environmental degradation. Improvements in community conditions must particularly reach those who are most deeply affected by current health and environmental inequities.

The Thunder Bay Economic Justice Committee and Lakehead Social

Planning Council are currently in the process of engaging those most negatively affected by social policy to inform a local and provincial Poverty Reduction Strategy. Health and environmental advocates need to work together with social advocates to prioritize social justice, thereby addressing the community factors, environmental, and health concerns that must be improved to reduce and eliminate disparities.

Farming and food production in our area has been declining, and the majority of our food is imported from great distances. This burns a large amount of fossil fuels and contributes significantly to greenhouse gas (GHG) emissions.

A number of successful activities have already been undertaken in our community by the Food Action Network to begin to address Community Food Security including the Good Food Box program, promotion of local food and farmers markets, community gardens and kitchens, and gleaning programs. As well, a significant amount of money has been secured by Lakehead University to conduct research and involve students and faculty in Community Service Learning related to food security. There are a number of other groups and organizations working on enhancing our local food system including the farmers markets, the Ogden/Simpson Veggie Garden Project, the Grower's Guild, Slow Food Superior and Community Shared Agriculture initiatives.



A robust local food system will create jobs, improve health, encourage community involvement and education, build local responsibility, support equitable food distribution, increase tourism, reduce GHG emissions, and entrench community-based food policies.

# **Objectives and Recommended Actions**

# 5.1 Use the Thunder Bay Food Charter to guide related decision-making and policy development within the city.

- Develop a Community Food Security Strategy.
- Ensure municipal planning (placement of stores, land-use) supports access to food.
- Provide or ensure convenient alternatives to motorized access to grocery stores and community food programs.
- Provide incentives for those with a low income to access local food, for example vouchers for the farmers market and volunteer in exchange for local food.
- Encourage healthy food policies and the availability of healthy food choices in schools, businesses and public institutions.
- Consider increasing support for community gardens and urban agriculture initiatives, and developing a municipal corporate policy for their operation.

# 5.2 Increase the amount of food grown, hunted, gathered, processed, and consumed locally.

- Assist regional food producers in developing food production, processing, storage, marketing and distribution system (food co-operative, certification/labeling system).
- Reduce barriers to local food acquisition, production, processing storage and consumption.
- Support research, development and innovation in the sustainability of the local food system.
- Review by-laws to allow greater food production in private yards, for example chickens and food crops in front yard.
- Support the creation of a central depot, storage and coordinated transport for local producers.

# 5.3 Reduce the transportation requirements and environmental impacts of the food system.

- Support education and promotion of seasonal and wild food acquisition, preparation, preserving and storage.
- Support and promote life-long education and instruction in nutrition, food skills, food culture and history.
- Preserve and sustain Boreal forests and watersheds in order to maintain local traditions of hunting, fishing and gathering.

# 5.4 Develop an integrated food waste management system that minimizes the environmental impacts of food production and consumption.

- Expand municipal composting initiatives.
- Continue to subsidize and support education for individual composting units.
- Investigate intensive food waste management
- Provide disincentives for litter-producing food, for example tax disposable plates and cups

# 5.5 Support and develop sustainable energy initiatives for local food production and processing industries.

• Investigate the use of renewable energy and water conservation technology for local food production.

5.6 Integrate social justice and health concerns into environmental planning and policies in order to create a food system that is just, and therefore truly sustainable.

#### WHAT CAN I DO?

- Buy locally-produced food –
   if it's not available, make a
   request to the store manager.
- Visit local farms and farmer's markets to learn more about where food comes from.
- Choose foods without a package and a label more often.
- Read the label and choose foods that have no more than five ingredients.
- Grow your own produce.
- Compost kitchen and garden waste.
- Buy food in large size containers and separate into smaller, re-usable containers.
- Bring your own bags or bins to carry groceries.
- Avoid disposable containers, dishes and cutlery.





Buildings represent the single larges opportunity to take immediate and measurable steps toward sustainability.

Canada Green Building Council



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### **6.0 GREEN BUILDINGS**

#### Goal

To promote community sustainability, develop leadership and economic diversification in our building sector, and greatly reduce greenhouse gas emissions, by encouraging the use of green building strategies, technologies, incentives and regulations to reduce energy consumption, promote conservation, and create safe and healthy places to live, work and play.

# Why it Matters...

Thunder Bay is the largest City in Northwestern Ontario, and our geographic location means cold winter months where significant heating requirements are necessary in all sectors — residential, institutional, commercial, and industrial. Buildings contribute to approximately half of all carbon dioxide emissions in Canada. In Thunder Bay, municipally owned buildings result in 58% of local government emissions. Energy use within these buildings cost the City over \$9M in 2005. Retrofitting existing buildings and setting higher standards for all new buildings represents a key savings opportunity for the municipality.

# What is Green Building?

Green building is the practice of increasing the efficiency with which buildings use resources — energy, water, and materials — while reducing building impacts on human health and the environment, through better siting, design, construction, operation, maintenance, and removal — the complete building life cycle.

#### What is LEED?

Leadership in Energy and Environmental Design (LEED) was created to define "green building" by establishing a common market-based standard of measurement.

LEED promotes integrated, whole-building design practices, recognizes environmental leadership in the building industry, and raises consumer awareness of green building benefits. There are six main areas addressed by the rating system:

- Sustainable sites
- Water efficiency
- Energy and atmosphere
- Materials and resources
- Indoor environmental air quality
- Innovation and design process



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Energy efficient building design helps to prevent heat loss, reduce electricity and natural gas consumption, and consequently lower greenhouse gas (GHG) emissions. Building better — in a more energy efficient way — is a cost-effective way to address the energy challenges that Ontario faces. Building better will also help address other environmental issues such as stormwater management, water efficiency, waste reduction and air quality. This policy is expected to yield long-term cost-savings to the City's taxpayers due to improvements in life-cycle performance and reduced life-cycle costs, as well as broader environmental benefits.

Showing leadership by adopting the gold LEED standard within municipal buildings will encourage residents and the private sector to improve the community's building stock. The residential sector produces 27% of the community's GHG emissions, so there are significant savings opportunities to be achieved. Economically, the community will also benefit from the promotion of new technology, green building materials and increased building renovation.

# **Objectives and Recommended Actions**

# 6.1 Promote the use of best design practices and guidelines for sustainable design and construction practices within the community.

- Develop a sustainable building policy for municipal buildings encompassing an integrated design and life cycle analysis, and reflecting the recommendations made within the CEAP.
- Encourage LEED Canada standards in the entire MUSH sector (Municipal, University, Schools, Hospitals) for new construction or major renovations.
- Earthwise partners will promote and undertake LEEDs practices in the wider community and acknowledge success in this regard.
- Investigate at a policy level, and implement where possible, incentives and other tools possible within the Municipal Planning Act, such as:
  - Reduce, waive or rebate the permit fees for buildings meeting new standards
  - Municipal recognition for developers who use green/energy-efficient design

- Tax rebates or holidays for such projects
- Consider tiered utility rates and smart meters
- Reuse and recycle older buildings and building materials
- Preserve buildings that are historically significant from an architectural or cultural point of view.
- Advocate for early adoption of 2012 mandatory targets for new home construction that meets or exceeds 80 on the EnerGuide for Houses scale for energy efficiency (as recommended by the Chief Energy Conservation Officer for Ontario).
- Support programs in concert with other partners to improve the sustainability of rental housing, encouraging landlords to retrofit tenant buildings for water/ energy conservation and recognize and promote successful examples.

# 6.2 Develop and promote a standard that reflects best practices for all publicly funded buildings, both new construction and retrofits.

• Certify all new municipally owned buildings to a minimum LEED Gold Canada standard, or higher where appropriate.

# 6.3 Achieve long-term savings to the citizens of Thunder Bay through reduced operating and life-cycle costs of municipal and private facilities.

- Participate in the 2030 Challenge, developing a fossil fuel reduction strategy to achieve carbon neutrality for municipal buildings by 2030.
- Consider the implementation of universal site plan control as a tool to promote environmentally responsible development including the adoption of appropriate design guidelines.

# 6.4 Share and expand local knowledge and experience between designers, builders, utilities, the public, and consumers through networking and education.

- Develop an online guide that compiles local sources, practical strategies, incentives and programs for energy/water conservation initiatives for residential and commercial sector.
- Consider subsidizing home energy audits for local citizens ie. Give away one home energy audit from a random draw of taxpayers per week (52 homes/year). 250 homes in the next 5 years.
- Actively seek partnerships with private developers and other levels of government to create a model sustainable neighbourhood in the City of Thunder Bay as a prototype for future development.

# 6.5 Foster a focus on the economic development potential of green building materials and products.

- Work with provincial regulators to encourage compliance with legislation regarding waste diversion on construction sites.
- Develop a sustainable design and technology centre of excellence in partnership with the educational and ICI sector to encourage research and development, and testing of new building technologies.
- Encourage demonstration of green building technologies through partnerships with local groups such as Habitat for Humanity, the Rotary Club, and the Kinsmen.
- Explore seeking a solar city designation.

#### WHAT CAN I DO?

- Proper weather stripping and caulking of doors and windows can reduce heating bills by 25%.
- Painting? Try out the new volatile organic compound-free (VOC) paint.
- Take leftovers from your renovation project to the Habitat for Humanity Re-Store where they will be recycled and used by someone else!
- Research your building materials, their origins and contents – what is their social and environmental footprint?



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# 7.0 LAND USE

#### Goal

To promote land use and development which feature healthy, sustainable communities that make wise use of existing resources; and to ensure that municipal policies, programs and regulations are thereby supportive.

### Why it Matters...

Land use planning plays a significant role in both defining built landscapes, and shaping our natural landscape. It can be used as a tool to limit the impact of human activities on the environment as well as to enhance significant cultural aspects of human history.

Careful land use planning can facilitate the livability and sustainability of our overall built environment. Beyond the original public health benefits, land use planning can protect forests and green spaces, encourage walkability, reduce GHG emissions, reduce the impact of the urban heat-island effect, and contribute to the overall aesthetics and wellbeing of a community.

Policies for sustainable land use are captured within the Smart Growth approach to land use planning. This approach is characterized by an attempt to integrate economic, environmental, social and cultural factors. Components of this approach can be found in the City of Thunder Bay Official Plan (OP) and are integral components of Ontario's Provincial Policy Statement.

The City's existing land-use pattern reflects the merger of several former municipalities, most notably the amalgamation of the two distinct former communities of Fort William and Port Arthur into Thunder Bay in 1970. Thunder Bay has followed development patterns demonstrated across North America with respect to suburbanization, and because of the legacy of being two former communities, now contends with the decay of two downtown cores. These traditional cores suffered losses in population and economic activity with residential suburbanization, and migration of commercial functions to the intercity area. The resulting urban sprawl leads to general decline in societal health. Residential neighbourhoods in Thunder Bay demonstrate the range of development styles seen elsewhere, but hold a uniquely rich cultural history that could be successfully capitalized on in the future.



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# **Objectives and Proposed Actions**

# 7.1 Protect, enhance, and showcase cultural heritage and ecological features.

- Work with EarthWise Community Partners, First Nations, cultural groups and the City to develop a strategy to protect, restore, and celebrate our rivers;
- Identify, protect and enhance connectivity of diverse ecosystems/ significant natural heritage features represented within the urban area:
  - Identify, define, and inventory natural heritage features within the City as recommended in the City of Thunder Bay Official Plan (OP) 2.1(a), and OP 2.4
  - Increase awareness of natural heritage features as recommended in OP 2.5
  - Direct growth away from significant features and linkages identified through above recommendations.
  - Integrate the trail system with linkages where ecologically appropriate;
- Encourage design practices that preserve, conserve, and enhance our heritage resources and create a sense of community, with special attention paid to local, distinct cultural groups, built heritage and First Nations:
  - Integrate municipal cultural planning into development decisions
  - Identify and protect significant public views as recommended in OP 3.8
  - Create a Heritage Resource Master Plan as recommended in OP 3.9
- Examine policies and regulations that can aid in enhancing the natural environment and community greening beyond current policies, including:
  - Enhancing forested areas, particularly types of forests that are at risk of being lost by inventorying the amount of forested cover and reviewing the establishment of a specified forest cover target
  - Establishing community gardens
  - Maximize new tools in the Planning Act

Smart Growth as defined by the Ontario Smart Growth Network is a return to urban villages. We define an urban village as "a place that has almost everything you need on a daily basis and you can walk to get there".

# 7.2 Champion Smart Growth focusing on best design practices and guidelines for sustainable design.

- Create an interdisciplinary team of City Staff and Administrators to lead the review of the OP, including staff from all departments.
- Facilitate growth that maximizes the efficiency and economic viability of public transit;
- Promote pedestrian-scaled development in both residential neighbourhoods and commercial areas;
- Strive to create residential neighbourhoods which are mixed use, contain a variety of housing forms and provide access to daily amenities within walking distance;
- Investigate possibilities for neighbourhood intensification and land use diversification in the City to address targets and policies for intensification and smart growth;
- Review alternative land use designations that provide new direction and guidance to the north and south downtown core areas and that guide their development as mixed use centres of the city as set out in OP19.19 and 19.20.
- Discourage Greenfield development and encourage brownfield redevelopment of City-owned property;
- Create a Heritage Resource Master Plan as recommended in OP 3.9 to protect built and cultural heritage as well as related natural heritage features.
- Examine policies and regulations that can aid in reducing energy consumption and GHG emissions, including:

Setting maximum off-street parking requirements

Permitting private, alternative electrical power generation

Encouraging intensification (denser urban settlement)

Requiring a residential component in new downtown development

Regulating drive-thru establishments

Include transit and pedestrian friendly features for new developments

Increase in community green space

• Examine enhancing the existing educational/medical corridor.



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# 7.3 Encourage the sharing of local knowledge and experiences between designers, builders, utilities, and cultural groups through partnerships.

- Use design charrettes (collaborative design session) for creating Urban Design Guidelines;
- Facilitate the sharing of information with the general community;
- Focus on partnering with First Nations;
- Create Cultural and/or Environmental Advisory Committee to Council;
- Enhance opportunities for, and impact of, public input to City development beyond what is provided for in the Planning Act (e.g. towards consensus rather than notification);
- City to work with stakeholders (public) to design consultation programs for major proposed developments and or policies; and demonstrate how input will be used;
- Create strong neighbourhood groups/civic leagues and connectivity based on the existing Fort William model: Evergreen A United Neighbourhood, and the Office of the Neighbourhood.

# 7.4 Curb Thunder Bay's urban sprawl to reduce energy consumption and greenhouse gas emissions.

- Establish Settlement Areas and direct growth within those boundaries in accordance with the Provincial Policy Statement (PPS);
- Identify areas for multi-unit housing;
- To strengthen the City's sustainability and efficient land use practices, the following will be investigated:
  - Examining the application of universal site plan control;
  - Strengthen Official Plan policies that encourage infill redevelopment including setting residential density targets, examining increasing residential dwelling densities along transit routes, and reviewing existing Community Improvement Plans for effectiveness;

- Implement incentives (as recommended by ICLEI) in accordance with Planning Regulations. Examples of possible incentive programs are:
  - Reduce or waive the permit fees for green projects
  - Advertising or recognition for developers who use green/energy efficient design
  - Density bonuses
- Create development charges under the Development Charges Act, to ensure that new development pays for itself, as dictated by the OP 22.19.
- Ensure 5% Parkland Dedication is in the form of land located in strategic locations that support the objective. The City will consider increasing the 2% Parkland Dedication for commercial or industrial development or redevelopment. Any cash in lieu of parkland shall be applied to the Parks Reserve Fund.

#### WHAT CAN I DO?

- Educate yourself in the City's land use and decision-making process
- Get on the circulation list for development applications
- Support Council in making decisions consistent with corporate policies and sustainability
- Sign up for free e-newsletters from Ministry of Municipal Affairs and Housing to keep current on land use planning matters
- Find out what other cities in the Province, Country, Continent, World are doing and make suggestions to Staff and Council







'For the first time in the history of the world, every human being s now subjected to contact with dangerous chemicals, from the moment of conception until death."

Rachel Carson, Silent Spring, 1962

EarthWise Thunder Bay Community Environmental Action Plan 2008 ...A Living Document

Building a Community Vision For Sustainable Living

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### 8.0 PESTICIDES

#### Goal

To protect the health and well-being of the environment and local citizens today, and ensure a sustainable future, by eliminating the use of pesticides on public and private property.

# Why it Matters...

Citizens of Thunder Bay and the surrounding region are becoming increasingly concerned about the health risks associated with the non-essential use of chemical pesticides in the community. This concern has led to the formation of a community-based group comprised of representatives from the health, environment, education, commerce, and industry sectors, as well as participation by the general public. The group, Citizens Concerned About Pesticides (CCAP) has requested Council follow the lead of 127 other Canadian municipalities and regulate the non-essential use of pesticides. The Ontario Municipal Act permits the City of Thunder Bay to enact by-laws that set further conditions on the use of pesticides.

Recent studies have highlighted health risks associated with pesticide use. The Ontario College of Family Physicians conducted a comprehensive review of research on the effects of pesticides on human health, showing consistent links to serious illnesses such as cancer, reproductive problems and neurological diseases, among others. The evidence indicates that children and pets are more vulnerable to the effects of pesticides due to their smaller size, proximity to the ground, hand-to-mouth behaviours, greater ratio of skin surface area to weight, immature detoxification systems and higher metabolic rates.

Both the Federation of Canadian Municipalities and the Association of Municipalities of Ontario have released policy statements on pesticides, recognizing their adverse effects, and suggesting solutions such as Integrated Pest Management (IPM), public education, and development of municipal by-laws. Pesticide production is also known to be an extremely energy intensive process. Manufacturing releases approximately .3 MT (million metric tons) of carbon dioxide annually. We should be working to reduce greenhouse gases which contribute to global warming.

Cosmetic pesticides are chemical or biological substances used to destroy living things such as: insects (insecticides), plants (herbicides), and fungi (fungicides) for the purpose of enhancing the appearance of a lawn or garden. They are sold commonly as sprays, liquids, powders or combined with chemical fertilizers. –Canadian Lung Association, 2008



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# **Objectives and Recommended Actions**

- 8.1 Educate citizens about the personal and ecological health concerns associated with pesticide use, and work to change ingrained perceptions about lawn and garden maintenance.
  - CCAP will continue to be used as a forum to bring together those concerned about the use and effects of pesticides.
- 8.2 Educate and advise citizens about alternatives to the use of pesticides, by promoting and endorsing pesticide-free methods of lawn and garden management.
  - The City and its EarthWise Community Partners (including CCAP) will
    provide a comprehensive education campaign focused on reducing
    pesticide use.
  - The City will promote IPM and reduced pesticide use on golf courses, with the ultimate goal of pesticide elimination.
- 8.3 Work with the City and relevant stakeholders to create a municipal bylaw restricting the use of pesticides for cosmetic purposes.
  - Implement a public education campaign to ease the phase-in of the new bylaw.
- 8.4 Advise Government on the development, promotion and implementation of its policy/by-laws relating to the responsible use of pesticides.
  - The City will review and update its current bylaws to ensure they support and encourage sustainable yard and lawn maintenance.
- 8.5 Promote local, and organic food.

#### WHAT CAN I DO?

- Decrease your lawn size by landscaping with stone, wood, perennials or shrubs.
- Use native plants, ornamental grasses, and ground covers to replace lawn.
- Where you do have lawn, choose drought resistant grass seed. Top dress with organic fertilizer, aerate, and over-seed with fine fescues in the spring to crowd out weeds.
- If you must water your lawn, ensure that you water deeply to promote root growth.
- Dig offensive weeds by hand, or use an organic herbicide.
- Tolerate (enjoy?) a few dandelions and insects.

When risks to human health are unnecessary or uncertain, the wisest course of action is to take precaution by reducing use of pesticides in the urban environment. This is consistent with heightened public demand for greater regulatory control, primarily at the local level, in order to enhance environmental protection and the protection of human health. (Association of Municipalities of Ontario, Pesticide Brief, May 2003:1-2.)

Pesticides are a concern to human health and the environment. They are of particular concern to such vulnerable populations as pregnant women, the elderly, children and people with chemical sensitivities, allergies, and immune system deficiencies. Adverse effects attributed to pesticide exposure include reproductive effects, chromosomal abnormalities, higher risk for some cancers, and physiological dysfunction. (Federation of Canadian Municipalities, Pesticide Policy Statement, 2006).

### 9.0 WASTE

#### Goal

Adopt a goal of Zero Waste to secure the environmental health of the Thunder Bay region, thereby reducing greenhouse gas emissions, conserving and protecting our natural resources, and creating employment opportunities as a sustainable community.

# Why it Matters...

Each person in Ontario produces 640 kilograms of solid waste annually (Stats Canada, 2000). Much of this waste is potentially useful as it contains materials that could be reused and/or recycled. Canada throws away the energy equivalent of millions of barrels of oil per year, with significant economic, social, environmental and cultural impacts. In addition to the substantial costs of waste collection and disposal, the production of waste creates GHG emissions and toxic substances. The approximately 99, 232 tonnes of waste sent to landfill in Thunder Bay in 2005 produced approximately 47,800 tonnes of GHGs - 3% of the community's total GHG emissions.

In 1994, the Ontario 3Rs Waste Regulations (O. Reg. 101/94-105/94) were enacted by the Ministry of the Environment with a goal of reducing municipal waste 50% by 2000. This required waste audits, waste reduction work plans and source separation programs for major generators including municipalities, hospitals, offices, hotels, "big box" stores, educational institutions (350 students+), multi-residential buildings (six units+), large manufacturers, and construction and demolition projects. The goal has not been met, and much more work needs to be done to raise awareness of the regulations.

#### What is "Zero Waste?"

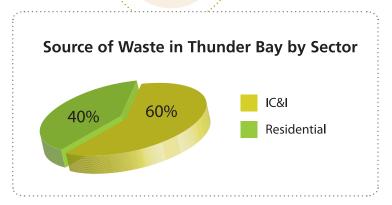
Zero waste is a philosophy related to the redesign of our resource-use system. It strives towards maximum waste reduction through the most efficient use of natural resources and materials and the maximizing of recycling. The term waste is replaced with resource. A growing number of municipalities across Canada are adopting the philosophy of Zero Waste.

Thunder Bay's Zero Waste Action Team is a leader in this field, promoting the concept since 1992.



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In Thunder Bay waste management planning is not new, but requires greater resolve to act and greater support from the decision-makers and the community. A variety of plans have proposed new and progressive ways to deal with our waste such as the 1998 Waste Reduction Program (included 12 strategies to achieve a 50% waste diversion target), and the Task Force on Garbage Collection (mandated by the 2004 New Foundations Living Strategic Plan and completed in 2007). The City is continuing to work on implementing some of the recommendations approved in 2007.



The total local residential diversion rate including curbside/depot recycling, household hazardous waste depot, leaf and yard waste collections and all other diversion program tonnage was 22.5% in 2005. To assist Thunder Bay in developing sustainable waste management solutions and programs to meet the needs of our community, a long range comprehensive Integrated Waste Management Master Plan is recommended. This plan will give municipal waste managers and the community guidance and direction to manage waste and resources based on a long range strategy, consultation, and cooperation between all sectors. It will also optimize resource recovery and economic development opportunities and ensure compliance with current and pending legislative requirements.

Some materials such as fluorescent lights and electronic waste contain toxic chemicals such as lead, or mercury, which pose health and environmental risks. Mercury is highly toxic and is found in coal, fluorescent lights, thermostats, thermometers and some types of switches. Residents may bring mercury-containing products to the Household Hazardous Waste (HHW) Depot at the John St. Landfill or to depots set up by EcoSuperior in conjunction with local businesses. Other HHW may also be brought to the HHW depot at the John St. Landfill. As a result of concerns about potentially hazardous electronic waste going to landfill, the Zero Waste Action Team (ZWATeam), worked with the City and IC&I sectors to facilitate the establishment of the Pack Pros Plus E-Waste Collection Depot in 2004. This has resulted in 45,454 kgs of e-waste being diverted from the landfill in Thunder Bay and the region annually, and created new direct jobs.

Litter has a negative effect on the quality of life and economy of our community. Rather than the current concentration on cleaning up, primary emphasis should be put on prevention and public education, before litter hits the ground, as has been the goal of Litter Free Thunder Bay. Each year, thousands of people participate in the City's annual "Spring Up To Clean Up," helping to clean up stray garbage littering our streets. One major component of this litter is plastic bags. The Provincial Government aims to reduce the use of plastic bags by 50% by 2012. Plastic bags take many years to break down, are made of oil (a non-renewable resource), and cannot be burned or buried safely. Strategies to reduce their use and promote alternatives are under way in Thunder Bay.

Green purchasing decisions reduce the impact on the landfill, and can be made by everyone. Our local chapter of Habitat for Humanity works to reduce construction waste by promoting the reuse of building materials through its Restore. Several local organizations also collect used clothing and household goods for reuse, reducing the impact on the landfill. On a larger scale, green procurement policies have been adopted by many organizations and businesses that purchase vast quantities of goods and services. Typically focusing on products made with sustainable or recycled materials, have a limited amount of packaging and are produced as locally as possible, a green procurement policy encourages the life-cycle analysis of all products purchased.

# **Objectives and Recommended Actions**

# 9.1 Develop and implement a long-range comprehensive, Integrated Waste Management Master Plan adhering to Zero Waste principles.

- Increase waste diversion to extend the life of the existing John Street Landfill Site.
- Achieve full cost recovery in the solid waste management system as outlined in the 2004 New Foundation Living Strategic Plan.
- Update the City of Thunder Bay internal waste diversion handbook and build upon its successes to increase waste reduction and diversion in all corporate departments.
- Promote and participate in provincial environmental stewardship and waste minimization programs.
- Promote and encourage extended producer responsibility for all products.



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#### 9.2 Increase the reduction and diversion of hazardous waste.

- Explore opportunities to increase accessibility and diversion of household and small business hazardous waste.
- The City and EarthWise Community Partners will work together to continue to increase the effectiveness of the mercury reduction programs.

# 9.3 Expand on leaf and yard waste collection and other composting initiatives.

• Promote and enhance the existing composting program.

# 9.4 Increase waste reduction and diversion in the residential sector.

- Encourage the responsible disposal of E-Waste and develop solutions for diverting historical e-waste.
- Reduce the use of plastic shopping bags by a minimum of 50% by 2012.
- Develop an education and marketing strategy to address the challenges and misconceptions in participating in recycling and waste diversion opportunities within the residential and multi-residential sectors
- Promote the 6Rs: Rethink consumer behaviour, Refuse unnecessary products and packaging, Reduce consumption, Repair broken items, Reuse and Recycle materials through comprehensive social marketing programs
- Share experiences and successes with others in the region.

# 9.5 Reduce littering in Thunder Bay through a preventative approach with an emphasis on public education and incorporate recycling/litter prevention opportunities for people at play and away from home.

• Develop a litter awareness program about the social, economic and environmental costs of litter, focusing on litter prevention.

# 9.6 Work with large and small IC&I waste generators to develop and implement waste reduction/diversion strategies.

- Encourage compliance with Ontario's 1994 3Rs Waste Regulations.
- The City will continue to work with small business to develop costeffective solutions to increase waste reduction and diversion.
- Identify new economic development opportunities.
- Reduce the life-cycle cost of industrial infrastructure.
- Provide incentives and enact bylaws to divert resources from landfill.

# 9.7 Develop and promote green procurement capacity within Thunder Bay by adopting sustainable environmental and ethical purchasing policies (SEEPP).

- Develop a municipal Corporate Green Procurement Policy based on social and environmental ethics.
- Work with EarthWise Community Partners to promote this policy in the wider community.

#### WHAT CAN I DO?

- Reduce your waste production.
- Think before you buy look for products with little packaging, buy in bulk or use reusable containers.
- Buy locally manufactured/grown materials and products.
- Use reusable containers and bags for lunches, and when shopping.
- Compost all acceptable organic matter.
   You'd be surprised at how you can reduce your weekly disposal needs. No room to compost outside? Get some worms and start an indoor vermicomposter!
- As a consumer society it is important to practice the 6 "Rs" related to waste reduction; Rethink, Refuse, Reduce, Reuse, Repair and Recycle in that order. Recycling should be the last step in reducing the amount of waste sent to the landfills each year.





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### **10.0 WATER**

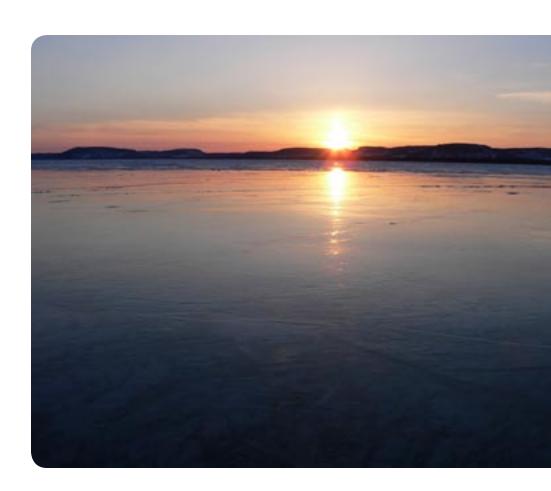
#### Goal

To engage the various stakeholders to maintain a safe and reliable supply of potable water now and in the future, and protect the integrity of the local watershed.

# Why it Matters...

The City of Thunder Bay is blessed with water resources. It is situated on the headland of Lake Superior, the largest freshwater lake in the world by surface area, and the fourth largest lake by volume. In Ojibwe, the lake is called Gitchigami, meaning "big water." The Lake is fed by over 200 rivers, one of the largest being the Kaministiquia, located at the southern end of the city. Other rivers within the City include the Neebing and McIntyre Rivers, McVicar Creek, and the Current River to the North.

Lake Superior is the source of Thunder Bay's drinking water. The water is processed through the Bare Point Water Treatment Plant, which has an operational capacity of 114 million litres per day (25 million imperial gallons per day).





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The Plant was first constructed in 1903 and expanded in 1978, and again in 2007 to its current capacity. The plant's treatment method utilizes pre-chlorination followed by membrane ultra filtration and post chlorine disinfection, eliminating the need for coagulant chemicals.

Many Canadians believe that our fresh water resources are boundless. The truth is that only a small proportion of our water is renewable and located close to where most Canadians live. While we take water for granted in Canada, high population growth, rising consumption, pollution, and poor water management pose significant threats to the global water supply. Coupled with climate change, the results will be disastrous in some areas. The Secretary General of the UN recently condemned the lack of heed paid by governments to these warning signs: "Throughout the world, water resources continue to be spoiled, wasted and degraded...The consequences for humanity are grave. Water scarcity threatens economic and social gains and is a potent fuel for wars and conflict." Ban Ki Moon's remarks come as environmental experts in Great Britain have identified 46 countries — home to 2.7 billion people — where climate change and water-related crises will create a high risk of violent conflict. Humanitarian organizations including the United

Nations have declared that water should be protected as a human right. Advocates of water governance stress the need for policies that protect the health of the planet, thereby protecting our water rights.

Another emerging issue of concern is contamination of water from pharmaceuticals and personal care products such as soaps, lotions and hair dyes. Current municipal wastewater technologies across Canada have limited and unknown abilities to remove the dissolved contaminants that may be contained in the waste stream. Rainwater that falls on impervious surfaces like roads, parking lots, houses, and buildings is directed into storm sewers and carried to the lake. This rainwater, called "stormwater runoff" is removed from the natural ecosystem and has a potential impact on biodiversity and the health of the ecosystem.

Much of our focus is on the municipal lake-to-lake water system as it serves the majority of local people. However, only 40% of Thunder Bay's land mass is urban or suburban, with the rest being largely rural and relying on groundwater sources for drinking water. Swimming and other non-consumptive recreational uses of water such as canoeing and kayaking are very popular in

Thunder Bay and also deserve special attention. The local community still has an important role in protecting, conserving, and enhancing our local waterways and water supply.

# **Adopting a Soft Path Approach**

The best way to secure the future for fresh water is to develop a plan that draws all "new" water from better use of existing supplies. This is first achieved by changing habits and attitudes to regard water as a service rather than as a commodity. Currently, the City of Thunder Bay has implemented programs that are recommended by the soft path approach, such as the rain barrel program to capture and use rain water for gardening rather than using drinking water. Other Canadian communities have gone further by initiating soft water concepts into daily management by providing services for water that better recognize the need for economic social and ecological sustainability. This has resulted in more source water left in situ and reduced the demand for a steady natural supply from year to year.

A "soft path" approach to managing our region's source water differs fundamentally from conventional, supply-focused water planning. It starts by changing the concept of water demand. Instead of viewing water as an end product, the soft path views water as the means to accomplish certain (specific) tasks. Reducing water demand provides the cheapest source of "new" water and can be implemented more quickly, and is less

# **Soft-Path Approach to Water Management**

Taking a soft-path approach to water management means that planners model a sustainable future state for water, paying attention to long-term economic and social prosperity. They then "backcast" to devise a feasible and desirable path to reach that state. In this approach, ecological sustainability is fundamental to all economic, political and socio-cultural choices.

Options to reduce water use through innovation, conservation, water reallocation and changing patterns of use and re-use, are employed. The result is that more water is left in situ.





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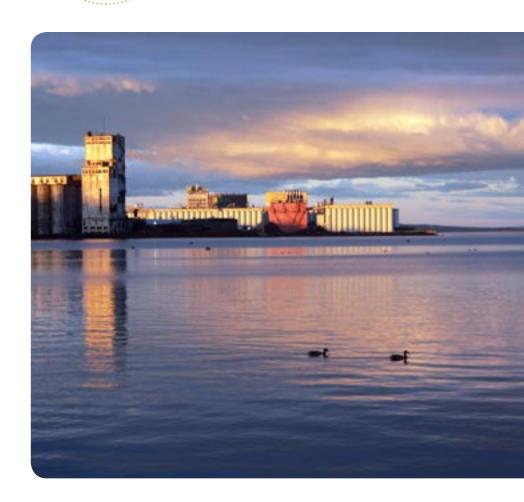


environmentally damaging than any existing supply alternatives. Current water demands can be met with far less water — and with water of lower (more appropriate) quality — than is currently used. High-efficiency toilets, for example, can reduce the amount of water used with each flush by 75 %. Further reduction in water use is possible by using reclaimed wastewater for non-consumptive uses, rather than potable water.

The water soft path promotes four key principles that can be integrated with current water policy and practice:

- Treat water as a service rather than an end in itself
- Make ecological sustainability a fundamental criterion
- Match the quality of water delivered to that needed by the end-use
- Plan from the future back to the present

At the very least, the water soft path can ensure a multi-stakeholder approach to managing the local watershed by providing public involvement opportunities for the City and watershed stakeholders. Public involvement promotes community education and innovative solutions to conserving water quality as well as quantity.



Objectives and Proposed Actions:

# 10.1 Build watershed partnerships that enhance stakeholder roles and responsibilities and encourage a soft path approach to water resource management.

- Review current efforts and project into the future using long range (30-100 yr) planning: Undertake a capacity/vulnerability assessment and develop a hierarchy of needs/organizations
- Adopt the water-soft path to promote the ethical use of water.
- Encourage use and update of the Thunder Bay Water Model.
- Identify and clarify the jurisdictions and roles of government, public agencies, and the general public, with a focus on public/private land-rights and responsibilities, and encourage local partnerships between them.
- Promote ecological integrity and protection of the local watershed and all its constituents
- Develop a comprehensive stormwater management plan

# 10.2 Promote the collection, and analysis of data and publicize to a diverse range of stakeholders.

- Document and prioritize areas for restoration and protection.
- Develop a community interface to ensure an aggregation of reliable, community oriented information
- The City of Thunder Bay in partnership with EarthWise Community Partners will undertake a comprehensive water-monitoring program, with a special focus on local areas of public concern such as headwaters.
- Promote the understanding of the local watershed, and challenges to water protection.

# 10.3 Create education and awareness programs to establish community standards.

- EarthWise Community Partners will work with the City of Thunder Bay to increase public awareness and provide ongoing education and monitoring on water use, conservation, enhancement and protection.
- EarthWise Community Partners will work together to launch a comprehensive education program for private land owners, and the public school system, with a special focus on areas of public concern such as riparian zones
- Work with local citizens to protect and enhance our local water resources.



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### WHAT CAN I DO?

- Use environmentally-safe biodegradeable detergents and personal care products (shampoos, hair dyes, lotions) without added chemicals that persist in effluent.
- Dispose of household hazardous waste properly. Don't flush chemicals or pharmaceuticals down your drain or into a storm sewer. (Return extra pharmaceuticals to the pharmacy).
- Change your toilet to a low-flow or dual flush model
- Capture run-off in a rain barrel and use it for all your outdoor watering needs (lawn, garden, carwashing)
- Fix any leaks in your home plumbing system
- Invest in water and energy efficient appliances such as dishwashers and washing machines.
- Install a low-flow showerhead







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# **PART 03**

#### **ACHIEVING THE VISION**

# **Education and Community Awareness**

The biggest challenge in transitioning to a sustainable community is the removal of barriers that prevent sustainable behaviour. Education and the building of community relationships are key to this transformation. For this reason the Education section of this Plan is included in the section on how to achieve the vision.

In Thunder Bay we can engage intimately with our environment, learn of the interdependence between humans and natural systems, and foster relationships which will preserve a high quality of life now, and in the future. The ecosystem of northwestern Ontario is our home, our "place". How we interact with it defines who we are, from the way we use water, to what we buy, the waste we create, how we heat and light our homes, and how we treat the air, water, and soil. Changing behaviour is a challenging task, but the benefits are worthwhile with respect to our quality of life and long term economic health.

Through municipal leadership and community involvement, we envision the City of Thunder Bay becoming a role model in sustainability for the rest of Northwestern Ontario. Education is key, and cities can lead and educate by example, however, the responsibility for education is shared among stakeholders within the community, including school boards, the college and university, non-governmental organizations, government institutions, business, industry and the media.

We are lucky to have a system of parks, conservation areas, waterfront and green spaces close at hand. We should support and build on these programs and resources that enable people to experience our heritage and diverse cultures in a natural setting. The establishment of additional interpretative infrastructure and

Environmentally sustainable behaviour is action which minimizes material use, sustains the supply of essential resources, reduces or eliminates toxic pollutants, and maximizes indigenous biodiversity.

He who cannot change the very fabric of his thought will never be able to change reality.

-Anwar Sadat

hands-on programs for all ages would be beneficial to foster a connection to, interest in, and an appreciation of nature and human impacts on the environment.

#### The Issue

Environmental awareness leads to ecological literacy, which is critical for the establishment of a culture of sustainability both locally and globally. Education is the key to developing that literacy. Only from an informed and engaged citizenry will the diversity of ideas and concepts essential to establish environmental sustainability flow into community action.

#### The Goal

The citizenry of Thunder Bay and region adopt behaviours necessary to maintain a healthy ecological relationship between human activity and the environmental resources upon which it depends.

Ecological literacy is the ability to understand the natural systems that make life on earth possible. An ecologically literate society would be a sustainable society that does not destroy the natural environment on which it depends.





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# The Objectives and Actions

- 1. Coordinate environmental initiatives within the City of Thunder Bay and region.
- a) Promote Thunder Bay as a regional hub for environmental leadership.
- b) Develop systems for information and data collection, storage and dissemination.
- 2. Remove barriers to the adoption of sustainable behaviours.
- a) Develop a community education and outreach program based on a 2-tiered community based social marketing approach with focus on key areas with high visibility.
- b) Utilize parks and green spaces to support and develop environmental education centres to engage citizenry.
- 3. Develop a culture of ecological consciousness.
- a) Collaborate with formal education systems in the delivery of programs, presentations, implementation of services and development of locally-based curricula.
- b) Engage youth through employment and volunteer activities.

# **Community Education and Outreach Program**

**Tier 1 - The City Corporation-Based Social Marketing Campaign** should focus on fostering city-wide awareness of, commitment to and support for, policy, regulatory and other actions that are needed to address key environmental issues. Activities in this component are directed toward the Corporation of the City of Thunder Bay, industrial, commercial and institutional sectors.

Community Based Social
Marketing is based upon research
that demonstrates behaviour
change is most effectively
achieved through initiatives
delivered at the community
level which focus on removing
barriers to an activity while
simultaneously enhancing the
activity's benefits.



This campaign should include education of city employees and partner organizations, giving them knowledge of the factors and issues driving the need for environmental sustainability so that they can communicate and implement the vision of a sustainable city.

The campaign should use advertising, media relations, and city-wide public events in order to raise awareness and promote understanding. A sustainability brand should be developed to enhance the profile of sustainability initiatives and reinforce relevant City messages. The brand should be compelling and simple to encourage other organizations to affiliate themselves with the program.

**Tier 2 – Community-Based Social Marketing Campaign** should complement the city-wide campaign by focusing on key sustainability issues as identified in other chapters of the CEAP. These activities should focus on encouraging people to adopt more environmentally sustainable behaviour through implementing strategies to overcome the barriers to behaviour change, using a documented pragmatic approach which will involve identifying barriers and benefits to a sustainable behaviour; designing a strategy that utilizes accepted behaviour change tools; piloting the strategy with a small segment of the community; and evaluating the impact of the program once it has been implemented across that community.

This campaign should include additional educational opportunities for the citizens of Thunder Bay (including personal and professional development options, both formal and informal), giving them knowledge of the factors and issues driving the need for environmental sustainability so that they can personally implement the vision of a sustainable city.





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# The Next Steps

This EarthWise Plan lays out the general direction that the community of Thunder Bay must go in order to reduce greenhouse gases and continue our transition to a sustainable community. Throughout the plan, we identify the need for continued local action, the importance of education, and the challenge of integrating our understanding of environment, economy, and community.

This is a new direction for many of us, but other communities have also gone through it, providing signposts along the path. The reclamation of brownfields are regenerating vibrant urban cores in London, England, Portland, Oregon and even Toronto - showing how sprawl and uncontrolled traffic can be stopped. Many Maritime cities, and the entire province of Prince Edward Island, not only recycle but also compost organics.

As the price of oil and natural gas rises we save more by using less energy. Growing food locally protects even the most vulnerable of us from transportation costs and an unstable global food system. Our air and water quality will remain the best in Ontario if we continue to put a high value on those resources.

Work with us to make Thunder Bay a sustainable community. Help to build a community where we can walk, cycle, or take clean and efficient transit to daily amenities. Be part of a city that has reduced waste to the point where a one bag limit is all anyone could want.

Walk along our rivers and travel our tree lined streets, enjoying fresh air and the chance to chat with neighbours. Attend the farmers markets, buying local produce from the Slate River Valley and other nearby farms, or grow your own in your back yard or in community gardens throughout the city.

Support local businesses that re-claim vacant lots and abandoned buildings to rebuild our cores. Renovate your own home and business with an eye to energy efficiency so we can all enjoy the benefits of city and commercial buildings that have met the LEED standards for efficiency.

### A Permanent Partnership

Partnerships are at the core of what we have achieved so far and are critical to ensure the long-term success of EarthWise. While there are differing interests amongst our many Community Partners, the common goal of a sustainable community has brought stakeholders to the table and allows us to see each other's interests and needs in a new way.

New partnerships have developed out of the EarthWise process, and the Corporation of the City of Thunder Bay has an important role to play in supporting the further development of these partnerships. EarthWise has been a collaborative process between the Corporation and the Community and provides an excellent basis for continuing to align efforts within the Corporation. There are many positive benefits to the city adopting the plan including enhanced community pride and health of local citizens, an improved local environment, lower greenhouse gas emissions, cost savings, strengthened community partnerships, and the attraction and retention of outside residents. The Plan is also the City's first Integrated Community Sustainability Plan (ICSP), the development of which Canadian municipalities are required to invest in — in exchange for Gas Tax Revenue Funds.

### Getting to the goal

Any effective implementation of strategy requires measurable objectives and targets, along with the commitment of responsible individuals in order to ensure results. EarthWise also requires the support of our partners. Effective coordination, monitoring, progress reports, financial resources, and adequate staff are required to carry out the work effectively.

The next step is for the Coordinator, in conjunction with the proposed EarthWise Implementation Advisory Committee, to develop a detailed implementation plan and engage the community to achieve our goals and objectives.



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In detail, our Next Steps are to:

- Establish the EarthWise Implementation Advisory Committee to help implement and oversee the Plan
- Develop a communication strategy that targets both City staff and the community
- Develop tools and training for elected officials and senior administrators/staff to integrate sustainability thinking into their daily decision making
- Nurture and renew our working groups to expand on the proposed goals, objectives and actions,
- Link up with other potential partners and community projects
- Focus on initiatives that meet several of the plans objectives / goals, with a transparent prioritization process using the Melbourne Principles, the Corporate Environmental Policy, and the City's Strategic Plan.
- Develop indicators based on goals and objectives.
- Report on progress through an annual Report Card using defined indicators.
- Review Best Practices and incorporate them into our short and long-term planning;
- Refine targets and priorities, and integrate new targets into the Strategy as they are developed through completion of the supporting plans and other programs;
- Ensure that targets are achievable
- Respond to the changing needs and priorities of the community
- Incorporate (in a fiscally responsible way) the environmental initiatives identified within the Plan into the City's annual budgeting and long-term financial planning processes
- Institutionalize a systemic way to engage and consult the public

Thunder Bay has a long history of building on its resource capital — now we need to build on our community capital. By engaging every citizen in the challenge we will build a stronger more vibrant sustainable city. It will require hard work and real change for us to succeed, but the rewards are worth the effort for both us and our children's sake.



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# **GET INVOLVED!**

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Check out the website and fill out the Feedback Form: www.earthwisethunderbay.com

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