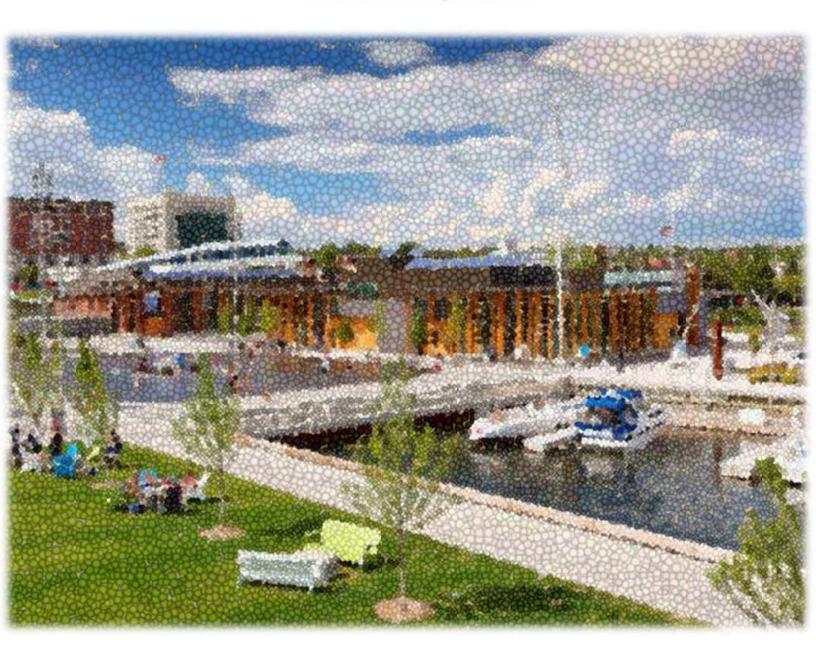


sustainable by nature



\*In 2013, EarthWise® Thunder Bay officially became EarthCare Thunder Bay as an outcome of trademark infringement allegations. EarthWise is a registered trademark, which was used under license (2010-2013) from Cambridge and North Dumfries Energy Solutions Inc.

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# **Overview**

#### Introduction

The Community Environmental Action Plan (CEAP) is a strategic document, the implementation of which supports the goal of reducing greenhouse gas (GHG) emissions and creating a more sustainable Thunder Bay. The CEAP encompasses everything that makes a community healthy and happy, supporting the pillars of the City's Strategic Plan: to be connected, healthy, vibrant and strong. A healthy economy, and a healthy society, must be embedded in a healthy environment. Evidence is becoming stronger that trees and greenspace help to reduce crime; that walkable cities not only reduce GHG emissions and improve air quality, but improve social cohesion. Society's continuous consumption and waste of resources comes with a price, and the City of Thunder Bay is taking steps to reduce waste, to improve energy efficiency, to increase access to local foods, to

provide options for active transportation, and to adapt to a changing climate. From a corporate perspective, the City is seeking to model best practices, to provide citizens of Thunder Bay with a high quality of life and best value services, and to reduce our long-term operating costs through the wise use of energy and resources.



- Vision: Thunder Bay: Connected, Healthy, Vibrant, Strong
- Mission: Quality services and community leadership.



- Vision: Building a community vision for sustainability.
- Mission: to 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

#### **Working Groups and Advisory Committee of Council**

The CEAP was developed, and is now being implemented, through the advice and efforts of Working Groups that focus on the following thematic areas:

- Energy & Transportation
- Lands & Water

- Human & Environmental Health
- Community Sustainability

The Working Groups are the backbone of EarthCare, their efforts affirm the importance of working together to achieve the EarthCare vision. The Working Groups are made up of a variety of stakeholders from across the community – representing all sectors: residential, commercial, industrial, and institutional. Their meetings are

open to the public, and new participants are always welcome. In 2012, the Working Groups have been completing the recommended actions found in their section of the CEAP, reviewing progress, and launching new initiatives.

Our thanks also go to the EarthCare Advisory Committee of Council who advise Council on the overarching implementation of the CEAP.



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#### **Timeline of Community Environmental Actions**

1997

• City of Thunder Bay signs on to the Partners for Climate Protection (PCP) Program.

2005

- Baseline year for greenhouse gas (GHG) and energy reduction targets.
- David Suzuki launches the development of a CEAP, with a presentation at the Auditorium.

2007

- GHG Inventories are developed for the City of Thunder Bay and the community.
- City upgrades the Bare Point Water Treatment Plant.
- All traffic signal lights upgraded to LED.

2008

- City Council adopts the Community Environmental Action Plan.
- City achieves PCP Milestone 1.
- City holds first ever Energy Conservation Week.

2009

- First Annual Report on the CEAP is released.
- Transit introduces bike racks.
- City achieves PCP Milestones 2 and 3.

2010

- The new Thunder Bay Solid Waste and Recycling Facility opens, and landfill gas capture and power generation is installed.
- First Annual Go Green Expo held.

2011

2012

- City Council adopts the 2011-2014 Strategic Plan, with strategic goals to implement the CEAP and reduce GHG emissions.
   Council also approved the Strategic Approach to Energy Management Plan.
- City installs new bike lanes.
- Climate Idols is launched.

• City initiates a Corporate Green Team, also a strategic Intiative of Council.
• Third Annual Go Green Expo is held in partnership with the Fall Into Winter Show.

- City begins work on an Adaptation Plan, joining the ICLEI Adaptation Initiative.
- City updates the GHG Inventory to 2011.
- City adopts the Urban Design Guidlines and Image Route Guidlelines.

# Why a Community Environmental Action Plan?

#### Science Confirms that Climate Change is happening

Around the world, temperature and precipitation measurements are confirming that the climate is changing. A large majority of the warmest years globally on record have occurred since 1997. Climate change has important implications for Thunder Bay. Climate-related impacts expected to have implications in the region include intense precipitation and flooding, high winds and storms, and shifting ranges of pests and invasive species. There may also be longer fire seasons, which may impact Thunder Bay's excellent air quality.

Extreme weather events, which are costly and have social impacts, are becoming more frequent. The flooding in 2012 demonstrated that heavy rainfall incurs high costs related to damage of property and infrastructure, business disruption and citizen's quality of life. With stronger and more frequent events over time, the ongoing expenditures to maintain and replace buildings and infrastructure may also rise.

The National Round Table on the Environment and the Economy estimated that climate change costs for Canada could escalate from roughly \$5 billion per year in 2020 to between \$21 billion and \$43 billion per year by the 2050s. Ontario has set greenhouse gas emission reduction targets of 15% below 1990 levels by 2020 and 80% below 1990 levels by 2050. It is widely accepted in the scientific community that industrialized

countries, such as Canada, must reduce their GHG emissions by 80% by 2050 to avoid catastrophic climate change.

#### What Can Thunder Bay Do?

There are many factors that affect the amount of GHG emissions that Thunder Bay produces as a community. There are everyday choices that can minimize our footprint. Additionally, demographic and financial factors such as population, GDP, and economic profile, as well as the emissions intensity of fuel and electricity sources, have a significant effect on overall



emissions. The Federation of Canadian Municipalities states that municipalities have direct or indirect control over almost half of Canada's GHG emissions. Municipal action has a very important role to play in tackling climate change.

Changes in GHG emissions tend to be correlated with changes in population. Thunder Bay's population held fairly steady from 2005 to 2012, while at the same time community-wide GHG emissions fell 38%.

Economic growth is typically associated with growth in emissions. The economy of the Thunder Bay Census Metropolitan Area (with GDP holding around \$5.5 billion in 2010) experienced a period of stagnation between 2005 and 2012. One would anticipate that the city's emissions might then also hold steady or decline.

As the economy recovers, the community will experience increased activity, particularly in the industrial and commercial sectors. Also, the Corporation is expanding its facilities, such as the addition of the new EMS Headquarters and stations, new fire halls, new centralized transit terminal and the proposed multiplex. These areas of growth will increase energy consumption, and it will become more challenging for Thunder Bay to maintain its GHG reductions without the implementation of energy management initiatives and energy efficient building practices. As Thunder Bay goes through economic renewal the community has the

opportunity to try to weaken the link between economic growth and emissions. Pursuing the transition to a knowledge-based, low-carbon economy may not only improve competitiveness and enhance jobs, but may also be a valuable development towards reducing the GHG emissions per capita and increasing quality of life.

With strong leadership, there is opportunity to start decoupling economic growth from GHG emissions by improving energy efficiency and using clean energy with lower emissions intensity. Success will be measured by a growth in output and productivity, without directly corresponding growth in GHG emissions.

Thunder Bay is gradually seeing some signs of a structural shift towards greener options in our economy, but the rate of change has been gradual. Thunder Bay will need to increase the rate of its transition to a green economy in order to maintain the emission reductions achieved to date.

## **Summary of Progress**

Based on the 2011 GHG Emissions Inventory Update

### **Community-Wide Performance**

The City of Thunder Bay has committed to community-wide GHG reductions of 10% below 2005 levels by 2017. The community has already exceeded its target, by reducing emissions 38% below 2005 levels.

GHG emissions in the community are tracked from residential, commercial, industrial, transportation and waste sources. In 2012, the GHG Emissions Inventory was updated to 2011.

Milestone 1: Create a GHG emission inventory and forecast - completed 2007

Milestone 2: Set an emissions reduction targets - adopted by Council 2008

Milestone 3: Develop a local action plan adopted by Council 2008

Milestone 4: Implement the local action plan ongoing 2008-2012

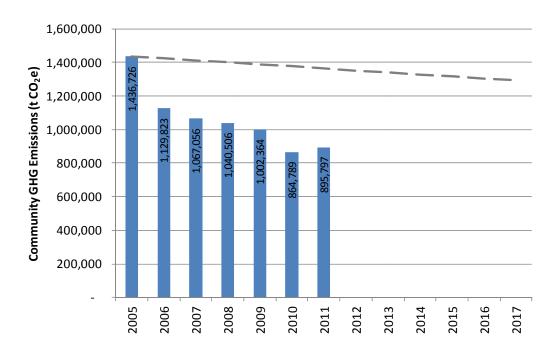
Milestone 5: Monitor progress and report results - ongoing 2009-2012

Transportation represented the largest share of emissions (34%), followed by residential (26%), industrial (20%), commercial (14%) and waste (6%).

Total community GHG emissions in 2011 were estimated to be 895,797 tonnes of carbon dioxide equivalent GHG emissions  $(tCO_2e)$ .

work:

#### **PCP Community GHG Emissions and Reduction Target Pathway**



From a GHG emissions intensity perspective, GHG emissions per person dropped to 8.3 tCO₂e per capita in 2011.

Community energy consumption followed a similar trajectory as community GHG emissions between 2005 and 2011. Total community energy consumption in 2011 was estimated to be 16,289,615 gigajoules (GJ), down

33% from 2005 levels. Natural gas was the most prevalent type of energy consumed in Thunder Bay at 53% (in GJ), followed by electricity (21%), gasoline (19%), and diesel (8%).

Three significant factors drove the decline in community GHG emissions. First, industrial activity declined sharply between 2005 and 2006, reducing the natural gas consumption by the industrial sector. Industrial natural gas emissions in Thunder Bay were

2005: 13.0 tonnes CO<sub>2</sub>e per capita

2011: 8.3 tonnes of CO<sub>2</sub>e per capita

-38%

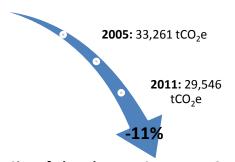
**Thunder Bay's Community GHG Emissions** 

69% lower in 2011 than 2005. The forest sector collapse in 2005-2006 and the economic recession in 2008-2009 both reduced activity, not only in the industrial sector but community-wide.

Second, the total vehicle kilometres travelled (VKT) within the City of Thunder Bay were modeled to be 26% lower in 2011 than 2005. This may be related to the economic downturn or it may simply be an artifact of a change in how VKT is measured. Third, the Ontario electricity emissions intensity decreased by 43% as the province brought on a greater proportion of renewable electricity generation. GHG emissions associated with electricity used in Thunder Bay were 49% lower in 2011 than in 2005.

# Local Government Performance

The City of Thunder Bay set a corporate GHG emissions reduction target of 35% below 2005 levels by 2017. The City has reduced its emissions by 11% below 2005 levels. From 2011 to 2012, emissions dropped 4%.



**City of Thunder Bay Corporate GHG Emissions** 

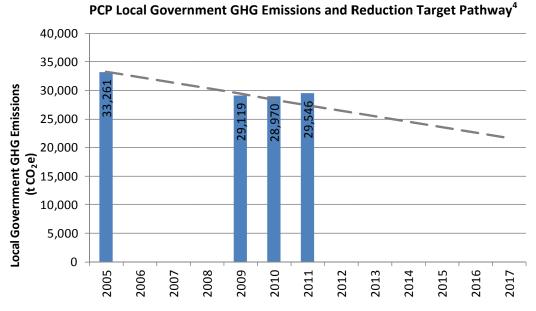
The Corporation's GHG emissions are tracked from corporate facilities, fleet, street lighting (street lights, traffic control and signal systems, and other lighting), water and wastewater treatment operations. In 2012, the GHG Emissions Inventory was updated to 2011. In 2011, buildings represented the largest share of emissions (44%), followed by the corporate fleet (34%), water and wastewater (17%), and lighting (5%).

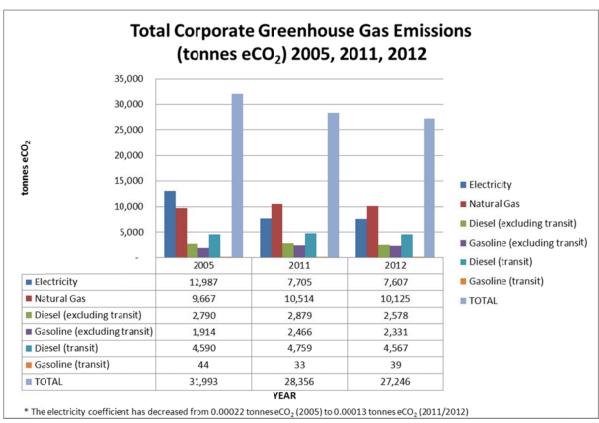
The Corporation has expanded more than was forecast under the original inventory's Business As Usual (BAU) Scenario<sup>2</sup>; the floor area of corporate facilities, for example, increased 9% from 2005 to 2011. Even with the

<sup>&</sup>lt;sup>1</sup> The City updated the methodology by which VKT are calculated, which may explain the decrease in modelled traffic volumes between 2005 and 2011.

<sup>&</sup>lt;sup>2</sup> ICLEI Energy Services, "City of Thunder Bay Greenhouse Gas Emissions Inventory and Local Action Plan for Emissions Reductions." January 2008.

successful energy conservation initiatives implemented to date, the additional load makes it challenging to achieve the 35% target by 2017.<sup>3</sup>





<sup>&</sup>lt;sup>3</sup> KBM Resources Group, "Thunder Bay 2011 Greenhouse Gas Emissions Inventory Report Draft." April 16, 2013.

<sup>&</sup>lt;sup>4</sup> Total emissions for 2006 to 2008 are not shown, as the vehicle fleet data for those years is incomplete. Total emissions for 2011 are shown as 29,546 tCO₂e which is different from the following chart showing Total Corporate GHG Emissions as 28,356 tCO₂e. This discrepancy is due to the fact that Facilities, Fleet & Transit do not track all that is included in the PCP Inventory on an annual basis, such as Outside Boards and Agencies.

#### **New Baseline Going Forward**

In 2008, City Council approved the consolidation of all energy data into the Energy, Financial and Administrative Services of the Facility, Fleet and Transit Department. As a result the data moving forward from 2009 will be used as a benchmark year for the local government.

The Corporation's total GHG emissions in 2011 were estimated to be 29,546  $tCO_2e$ ,<sup>5</sup> which represents approximately 3.3% of the total emissions produced by the community.

The Corporation's total energy consumption in 2011 was estimated to be 606,746 GJ, down 5% from 2009 levels. Natural gas and electricity were the most prevalent types of energy consumed (38% and 37%, respectively), followed by biodiesel blends (19%), and gasoline (6%). Overall, 2011 energy expenditures across municipal operations for the activities covered in the GHG Inventory were \$14,670,055.

Between the new baseline year (2009) and 2011, energy use in corporate buildings declined 5%, while floor area increased by 1%. Greenhouse gas emissions from buildings increased 2% during that time despite the reduction in energy use because of an increase in electricity emissions intensity over that period.

Vehicle fleet energy use increased 1% between 2009 and 2011. Due to a shift to biodiesel blends, which produce fewer GHG emissions per unit energy than diesel, vehicle fleet GHG emissions decreased 3%.

Lighting energy use declined 3% between 2009 and 2011. Associated emissions in that period increased 26% because of the increase in electricity emissions intensity.

Water and wastewater energy use declined 12% between 2009 and 2011. Associated emissions in that period rose 4%.

\_

<sup>&</sup>lt;sup>5</sup> This figure is based on the PCP 2011 GHG Emissions Inventory.

# 2012 Community Environmental Action Plan Goals and Progress Highlights

### **Active Transportation**

**Goal**: To increase the personal and environmental health of local residents and the area, provide economic benefits, and reduce GHG 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.

#### **Progress Highlights:**

- The trail from Bluffs to Centennial Park was upgraded from organic material to packed granular.
- The new Arundel Active Living Corridor was opened, featuring a multi-use trail paralleling the Street, along with new dedicated bike lanes, and a completely re-constructed intersection at Arundel St. and Lyon Blvd. West designed to improve pedestrian safety.
- New bike lanes were installed on Vickers St., Huron Ave., Shuniah St., and Arundel St.
- The Engineering Division introduced new "Shared Right-Turn" lanes to simplify right turning vehicle movements where bike lanes are present.
- Image Route Design Guidelines and Urban Design Guidelines were adopted by City Council.
- The Thunder Bay District Health Unit (TBDHU), in partnership with the Walkability Committee, contracted Dillon Consulting to review Thunder Bay's Official Plan using a healthy and safe communities lens. This report made recommendations on additional policy statements to support complete street design, access to greenspace, and restriction of urban sprawl.

Stasia Starr, TBDHU

Mike Vogrig, CTB, Engineering

#### **Active Transportation WG Members**

Lee Amelia, Active Transportation Intern
Thora Cartlidge, CTB, Planning
Shannon Costigan, EarthCare Advisory Committee
Michael Dorval, Confederation College
Adam Krupper, Ecosuperior/CTB AT Coordinator, Chair
David Noonan, Citizen
Bob Payne, Lakehead University
Werner Schwar, CTB, Parks Coordinator
Gordon Sheppard, Citizen
Stasia Starr, Thunder Bay District Health Unit
Mike Vogrig, CTB, Engineering
Barry Wolframe, Citizen

#### **Walkability Committee Members**

Richard Boon, Canadian Diabetes Association

Linda Bruins, Evergreen Neighbourhood Association Jay Eingold, EcoSuperior Cathy Farrell, Citizen Susan Forbes, Citizen Natalie Gerum, Centre for Place & Sustainability Studies, LU Marilyn Grudniski, Little Lions Waldorf Daycare & Kindergarten Mark Hardiejowski, CTB, Planning Jon Hendel, CTB, Transit Hanna Janiec, TBHDU Sarah Kerton, CTB, Sustainability Coordinator Adam Krupper, EcoSuperior/CTB AT Coordinator Ryan Love, CTB, Engineering Keith Nymark, Citizen Anne Ostrom, TBDHU, Chair Ashley Priem, EcoSuperior Werner Schwar, CTB, Parks Amy Siciliano, CTB, Crime Prevention Coordinator Tessa Soderberg, Accessibility Advisory Committee

- The new "Bike Racks for Business" program, funded by the City's Clean, Green, and Beautiful Committee offers artistic, stainless steel bike racks to local businesses using a cost-sharing model.
- EcoSuperior's Safe Cycling program trained 437 cyclists in Thunder Bay and now boasts 12 certified, professional cycling instructors.
- The Walkability Committee, a sub-committee of the Active Transportation WG, in partnership with the TBDHU, launched the "Imagine a More Walkable Thunder Bay" campaign. Events included a presentation on "Sustainable Happiness" by Dr. Katherine O'Brien, and the promotion of the walkable community checklist for citizens.
- The Walkability Committee has been an active participant in road reconstruction consultations, e.g. Valley
  St., the Event Centre open houses, Official Plan open houses and workshops, and the Junot Corridor land
  use open house.

The Active Transportation Working Group tracks the following data each year both as indicators of overall community-trends, and the impact of their efforts in implementing the Active Transportation objectives over the long term.

Indicator	2007	2008	2009	2010	2011	2012
# of traffic injuries to pedestrians (CTB Traffic	62	73	28	46	43	52
Collision Analysis Program)						
# of uses of bike racks on buses	-	-	7,290	13,746	21,060	18,516
# of transit rider trips per capita	28.6	31.2	33	31.7	33.01	33.61
Traffic Volume	1,501	1,472	1,333	1,361	1,372	1,334
(vehicle km traveled/ lane km on major roads –						
OMBI data – in millions)						
kms of bike-lanes and sharrows	0	0	0	10	20	29.8
kms of paved recreational trails	33.4	35.4	36	36	41	46
# of presentations on Active Transportation	-	2	14	30	43	77
# of people reached through presentations	-	175	560	2,954	2,098	2,070
# of community organizations engaged	-	8	18	22	25	26
Dedicated AT Funding (in thousands)	-	-	28.5	130	130	135



### **Building**

**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.

#### **Progress Highlights:**

- The Superior North EMS Building became operational in March, and was built to a LEED Gold Standard.
- There were various energy efficiency upgrades across the Corporation (see appendix for Corporate Energy Management Plan Annual Report).
- The Building WG participated in the Go Green Expo offering citizens the opportunity to learn about green building opportunities for both home builders, and home-renovators.
- The WG has agreed to take on an advisory role in a demonstration house project by EcoSuperior, which is expected to provide opportunities to showcase green building materials and products.



Gerry Broere, CTB, Manager
Construction/Renovation Services
Tom Cook, Citizen, **Chair**Larry Hogard, Superior Inspections
Sarah Kerton, CTB Sustainability Coordinator
Patrick Larocque, CMHC
Don Rutledge, EcoSuperior
Raphael Shay, EcoSuperior
Chris Todd, Citizen

#### **Community Greening**

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

#### **Progress Highlights:**

- The Urban Forest Master Plan was completed; to be presented to Council in early 2013.
- Green Infrastructure Policy Review document was developed to provide formal recommendations for the Official Plan review process.

#### **Community Greening WG Members**

Brad Doff, SMARTGreening, **Chair**Lynn Duffield, EarthCare Advisory Committee
Dan Fulton, Urban Greenscapes
Allan Hall, Citizen
Susan Jaward, Thunder Bay Horticultural Society
Sarah Kerton, CTB, Sustainability Coordinator
Werner Schwar, CTB, Coordinator Parks Planning
Rod Seabrook, Trees Thunder Bay
Heidi Strobl, FedNor

Shelley Vescio, CTB, City Forester Rena Viehbeck, CTB Urban Forest Program Specialist, **Chair** 

James Taylor, CTB, Special Projects Asset Management

- Emerald Ash Borer (EAB) Task force was developed and positioned for the potential arrival of EAB to NWO.
- The Urban Forest Section is now part of the formal review process of the preliminary Engineering Drawings and the Engineering Standards each year.
- 22,373 tree seedlings were planted in the watershed in 2012 through the Lakehead Region Conservation Authority's Private Landowners Tree Seedling Assistance Program.

The Community Greening Working Group tracks the following indicators on an annual basis to measure progress on the implementation of some of the associated objectives.

Indicator:	2008	2009	2010	2011	2012
# trees planted annually vs. removals	n/a	-109	34	452	118
# trees planted through the tree stewardship program	83	97	59	60	78
% of municipality dedicated to parkland	5.1	5.1	5.1	4.6 <sup>6</sup>	4.6





<sup>&</sup>lt;sup>6</sup> There was an actual increase in parkland within City limits in 2011. However, the calculating tools are much more accurate and now show 4.6% parkland space.

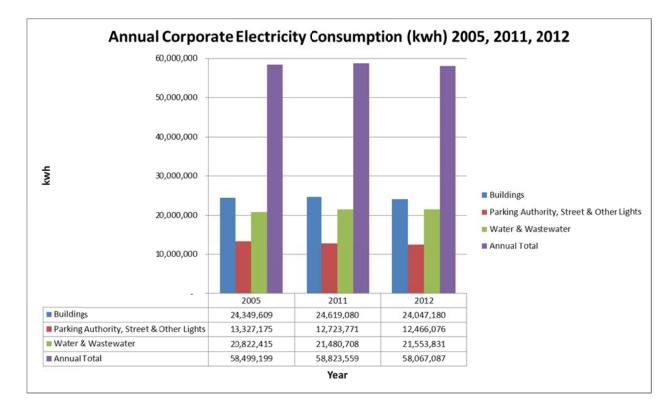
#### **Energy**

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

#### **Progress Highlights:**

- Updated Corporate and Community GHG Emissions Inventory to 2011, as required by the PCP Program.
- The City of Thunder Bay in strategic alliance with the Thunder Bay Hydro SEED Initiative (Sustainable
  - Electric Energy Development) developed projects that include the landfill gas generating station at the Mapleward Solid Waste and Recycling Facility, and rooftop solar PV installations on City buildings, generating approximately 21,000 MWH's of renewable electricity in 2012.
- Implementation of the Strategic Approach to Energy Management Plan (see appendix for details).

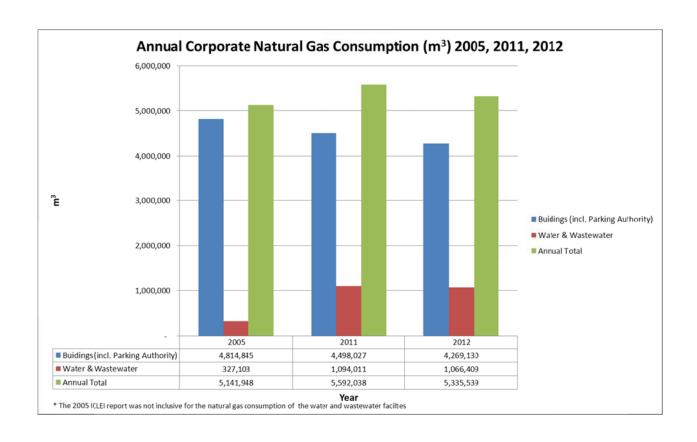
The following charts are based on our corporate tracking of data through the Facilities, Fleet, and Transit Department.

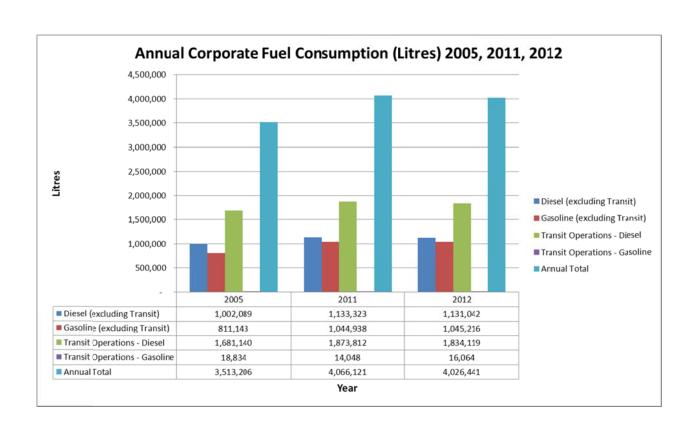


Vanessa DeGiacomo-Zwaresh, CTB, Energy Analyst Andrea Goold, Ontario Power Generation Scott Hoffman, Citizen

Larry Hogard, Superior Inspections Sarah Kerton, CTB, Sustainability Coordinator Kerstin Muth, Environment North, **Chair** 

Karen Pasko, CTB, Energy Analyst Raphael Shay, EcoSuperior Bill Willis, Thunder Bay Hydro





#### Food

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

#### **Progress Highlights:**

- Food Summit held in March 2012 had 40 participants to set a vision for developing a Food Strategy for Thunder Bay and surrounding area.
- Established Steering Committee to begin the development of a comprehensive local food strategy.

Erin Beagle, Roots to Harvest Rudy Buitenhuis, OMAF

**Food Action Network Members** 

Thora Cartlidge, CTB Planning

Robyn Gillespie, Confederation College

Kelly Hicks, Indian Friendship Centre Rebecca Johnson, City Council

Lauri Jones, Our Kids Count

Sarah Kerton, CTB Sustainability Coordinator

Volker Kromm, RFDA

Martha Mawakeesic, Anishnabe Mushkiki

Catherine Schwartz-Mendez, FAN Coordinator, TBDHU, Chair

Connie Nelson, FSRN

Gwen O'Reilly, Northwestern Ontario Women's Centre/Good Food Box

Raili Roy, Beanstalk Consulting

Tarlok Sahota, TB Agricultural Research Station

Jay Stapleton, EarthCare Advisory Committee Andrena Toth, Canadian Red Cross

The City secured funding from the Broader Public Sector Investment Fund (BPSIF is a partnership between the Greenbelt Fund and Ontario Ministry of Agriculture and Food) to conduct research into the needs of local public institutions and the capacity of local producers with the goal of increasing the purchase of local food by the broader public sector. 15+ public sector buyers and 50+ producers participated in the survey

agricultural community and others in the food value chain in the Thunder Bay area.

Food Action programs such as Good Food Box, Student Nutrition Programs, and Roots to Harvest secured more stable funding.

research. By identifying these needs the City will help to bridge gaps between public sector buyers, the

The growing number of Community Gardens reflects the increased interest in gardening and selfsufficiency, as well as the stable support of the City through the Community Garden policy.

Indicator:	2008	2009	2010	2011	2012
# of events that promote local foods	13	16	16	15	14
# of participants at "Eat Local" Workshops	350	400	425	400	400
# of participants at "Seedy Saturday" Workshops	-	-	-	107	200
% annual change in food bank + soup kitchen usage (OAFB Data)	+28.5	+46	+32	+32	n/avail
Cost of a Nutritious Food Basket for a Family of Four in our area in \$ / month (TBDHU data)		\$705	\$790	\$795	\$827
# of community gardens	5	6	6	7	10

#### 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.

#### **Progress Highlights:**

- Selected a consultant for the development of a Solid Waste Management Strategy that will provide direction for optimizing current and future residential and Industrial, Commercial, and Institutional (ICI) sector solid waste programs to best meet the financial, environmental and sustainability needs of Thunder Bay over the next twenty years.
- Ongoing social marketing initiatives are aimed at increasing awareness and participation in the reduction and diversion of hazardous waste.
- Ongoing comprehensive social marketing campaign aimed at promoting waste diversion and recycling initiatives within the community.
- Developed and launched the 'Recollect' waste and recycling collection reminder service. Residents can receive an email, tweet, text or phone message before collection day.

The Waste WG tracks the following indicators on an annual basis:

#### **Waste WG Members**

Brad Adams, CTB, Manager, Roads Division
Jessica Backen, EcoSuperior, Chair
Glenn Berst, St. Joseph's Care Group
Rod Bessel, Lakehead Public Schools
Cathy Bevilacqua, CTB, Supply Management Division
Jay Eingold, EcoSuperior
Rebecca Johnson, City Councillor
Sarah Kerton, CTB, Sustainability Coordinator
Lucy Laframboise, Citizen
Lisa Martellini, ReCool Canada
Randy Mehagan, Thunder Bay Regional Health
Sciences Centre
Dan Munshaw, CTB Manager, Supply Management
Division
Jason Sherband, CTB, Waste & Recycling Coordinator



Indicator:	2007	2008	2009	2010	2011	2012
Amount diverted through the HHW Depot in Metric Tonnes	178	157	165	276	362	235 <sup>7</sup>
Organic waste diverted from landfill through City programs (IC&I Sector) in Metric Tonnes	1,625	1,387	922	1,093	1,106	1081
Organic waste diverted from landfill through City programs (Residential Sector) in Metric Tonnes	941	900	1,181	1,384	1,351	1408
Total residential waste generated in Metric Tonnes	48,100	50,500	50,100	52,800	55,400	62,200
Total residential waste diverted in Metric Tonnes	12,800	13,900	15,300	16,500	18,000	18,600
% of residential solid waste diverted from landfill	27%	28%	30%	31%	32.5%	30% <sup>8</sup>

<sup>7</sup> Hazardous waste shows a decrease in tonnage for 2012 - new weighing procedures as a result of the new Phase 1 Municipal Hazardous or Special Waste Program implemented last year affected this. Also, the flood may have had an impact on depot use, as the homes affected likely were not utilizing the depot as much in 2012.

<sup>&</sup>lt;sup>8</sup> Residential waste generation is up significantly and therefore the diversion rate is down for 2012. This is a result of the increase in waste delivered to the Waste Facility due to the May 2012 flood clean up.

#### Water

**Goal:** Engage various stakeholders to protect the integrity of the local watershed and maintain a safe and reliable supply of potable water now and in the future.

#### **Progress Highlights:**

- The Water WG, made up of stakeholders from water agencies across Thunder Bay, and the community, continues to work towards the development of a comprehensive stormwater management plan, as well as to raise awareness about alternative methods of stormwater management.
- The City of Thunder Bay contracts
   EcoSuperior to deliver water
   conservation programs to residential

#### **Water WG Members**

Jim Bailey, Remedial Action Plan Coordinator
Tammy Cook, Lakehead Regional Conservation Authority
Shannon Costigan, EarthCare Advisory Committee
Dave Dutchak, CTB, Special Projects
Frank Edgson, Northshore Steelhead Association
Carl Goodwin, CTB, Process Engineer
Sarah Kerton, CTB, Sustainability Coordinator
Lucie Lavoie, EcoSuperior
Michelle McChristie, Great Lakes Advisor, Ministry of Env

Michelle McChristie, Great Lakes Advisor, Ministry of Environment Curniss McGoldrick, Lakehead University

Jamie Saunders, EcoSuperior

Werner Schwar, CTB, Coordinator Parks Planning

Josh Singh, Lakehead University

Hilarie Sorenson, Lakehead University

Rob Stewart, Lakehead University

Gordon Van Fleet, Confederation College

Shelley Vescio, CTB, City Forester

Davis Viehbeck, Ministry of Natural Resources

Jim Vukmanich, CTB, Chief Chemist

Aaron Ward, CTB, Project Engineer

Gail Willis, CTB Senior Technologist, Chair

Kestrel Wraggett, Lakehead University, Chair

- and industrial, commercial, and institutional sectors. Programs include toilet rebates, drainage rebates for sump pump installation, backflow prevention and weeping tile disconnection, rain barrel sales, and the distribution of promotional materials such as low-flow shower heads, faucet kits and shower timers.
- The 2012 Drinking Water Quality Annual Report was completed and can be viewed via the internet from the City of Thunder Bay's website (www.thunderbay.ca/water).
- The 2012 Water Festival, hosted by the Lakehead Region Conservation Authority (LRCA), reached over 600 students in grades 3 and 4.
- In 2012, 1,707 students participated in the 2012 Spring Water Awareness Program and Arbour Day programming, hosted by the LRCA.
- As part of the Canada Ontario Agreement, a Climate Change Monitoring station was installed by the LRCA in partnership with the Ministry of the Environment. The existing Neebing River streamflow/precipitation



- gauge site had additional equipment installed to monitor turbidity, groundwater level and quality, soil moisture, air temperature and surface water quality.
- The North Shore RAP and Lakehead University reviewed and assessed the status of beach advisories at Chippewa Park. A final report was submitted to the City of Thunder Bay in June 2012 recommending a risk management approach.

The Water Working Group tracks daily per capita water use based on the total litres treated at the Bare Point Water Treatment Plant:

Indicator			2008	2009	2010	2011	2012
Liters of treated water per capita per day (residential & ICI sectors) 442		407	400	391	369	369	

In 2012

549 rain barrels distributed

CTB Water Bar utilized at over 34 events

673 Reusable water bottles distributed

1500 youth received WaterWise presentation

## **Going Forward**

Thunder Bay has made steady progress on the implementation of the Community Environmental Action Plan. Support from all sectors of the community has been key in keeping momentum going. However, as we progress we are moving past the "low-hanging fruits" and "easy-wins" and must begin addressing the fundamental ways we work together and institutional barriers to change.

While the CEAP was originally concerned with mitigation of climate change, the focus has gradually been shifting – a reflection of a nation-wide and global shift of focus to recognize what has become the necessity of our times: adapting to a changing climate. In 2013, after five years of implementing the current CEAP, a new

draft version will be developed for community consultation and adoption in 2014. The new iteration of the CEAP will reflect the need for both mitigation and adaptation, and take our community from 2014 to 2020. What will Thunder Bay look like then?!

"This is not just about coping with climate change, but prospering through it." National Round Table on the Environment and the Economy

Appendix: Corporate Energy Management Plan, 2  Report	012

In 2011, City Council approved the adoption of the Strategic Approach to Corporate Energy Management Plan. The Energy Management Plan is a living document that provides a roadmap and builds internal energy management knowledge and awareness. It also provides the foundation for successful energy management decisions and actions within all Corporate operations.

In 2012, the Corporate Energy Management Committee worked collaboratively within all Departments to successfully reduce greenhouse gas emission from 2011 by 4%. This aligns with the consumption reduction and/or avoidance target of 2%-5% per year as set out in the Plan. Successes in achieving the vision of the Strategic Approach to Corporate Energy Management Plan are highlighted in the tables below.

#### **Process Improvement**

FOCUS AREA	ACTION	OBJECTIVE	2012 Progress
ENERGY DATA	Accessibility &	Provide access to	Continue to work with AMO-LAS to explore the
MANAGEMENT	Reporting	Corporate Energy Management Tool (EMT) for energy data to all identified staff	use of the Energy Management Tool to meet the needs of Corporate data accessibility and reporting
	Key Performance Indicators (KPI's)	Provide meaningful benchmarking indicators for all facilities	Determined KPI's should align with the Green Energy Act reporting requirements

FOCUS AREA	ACTION	OBJECTIVE	2012 Progress
ENERGY SUPPLY MANAGEMENT	Account Management	To establish a corporate Energy Innovation Reserve Fund with incentive funding to fund future energy initiatives	Energy Innovation Reserve Fund established and incentive funding from energy efficient upgrades are placed in fund
	Rate Optimization	To provide notification to procurement team by depts. of changes in operations that will affect consumption load requirements in future years	Continue to work with all Departments to advise of changes within operations and facilities portfolios. IE: addition of new Mountainview Cemetery facility, transfer of CN Station facility to private sector

FOCUS AREA	ACTION	OBJECTIVE	2012 Progress
ENERGY USE IN FACILITIES	Facility Standards	To develop operational standards for building controls within facilities using Industry standards	Various facilities reprogrammed thermostats with reduced day and night time settings  55+ Centre programmed and locked thermostats to control temperature settings

FOCUS AREA	ACTION	OBJECTIVE	2012 Progress
EQUIPMENT EFFICIENCIES	System Controls	To develop a process to control equipment and systems when operating levels or loads are reduced as to reduce energy use	Ongoing preventative maintenance programs in Fire Stations  Arena operators utilizing energy efficiency practises while operating refrigeration plant
	Energy Efficient Procurement	To develop policy for standards for the purchase of energy efficient equipment ie: Energy Star	Community Services budget approved purchase of new Energy Star appliances for various community centres  New energy efficient appliances purchased for 55+ Centre & Algoma Day Care  New energy efficient laundry equipment installed at Pioneer Ridge

FOCUS AREA	ACTION	OBJECTIVE	2012 Progress
ORGANIZATIONAL	Awareness and	To develop a	Signs posted to remind users to turn off lights
INTEGRATION	Participation	Corporate Energy	in rooms of 55+ Centre
		Awareness Program	
		to build internal	Fire Services promoting energy conservation
		capacity allowing	with Personnel
		Departments to	
		make informed	EMS reviewing energy use and phantom loads
		energy management	within Stations and with staff
		decisions	
	Incentive Awareness	To develop a	Met with Thunder Bay Hydro and Union Gas
		process to ensure all	representatives to discuss funding
		Departments are	opportunities for energy efficient projects
		aware of the	
		available energy	Participated in Ontario Power Authority's Small
		incentives that can	Business Lighting Program and other Energy
		be leveraged in	Retrofit Incentive Programs
		planning energy	
		management	Participated in various Union Gas Energy
		initiatives	Retrofit Incentive Programs

# **Program Implementation**

FOCUS AREA	ACTION	OBJECTIVE	2012 Progress
ENERGY DATA MANAGEMENT	Interval Data	Establish policy for requiring interval meter installation for new or retrofit projects for facilities consuming more than 250,000 kWh or demand greater than 50 KV	Interval meters installed in two facilities with ability to monitor electrical consumption through Energy Management Tool

FOCUS AREA	ACTION	OBJECTIVE	2012 Progress
ENERGY SUPPLY MANAGEMENT	Supply Management	To establish communication protocols with purchasing Department and Corporate Departments using energy in order to facilitate an understanding of the energy being purchased and used	Progress to be reported in 2013.

FOCUS AREA	ACTION	OBJECTIVE	2012 Progress
ENERGY USE IN FACILITIES	Operating Procedures	To establish written operating procedures to control equipment systems operations so as to optimize energy efficiency and eliminate waste energy	Progress to be reported in 2013.
	Customer Awareness	To develop program to increase energy conservation awareness for customers ie: users of City facilities	Signs posted in rooms of 55+ Centre to remind users to turn off lights when room not in use

FOCUS AREA	ACTION	OBJECTIVE	2012 Progress
EQUIPMENT	Lighting Upgrades	To develop standards	Energy efficient lighting installed in various
EFFICIENCIES		to lighting system	facilities
		upgrades internal	
		and external, with	Algoma Day Care using natural sunlight when
		consideration for	possible
		appropriate lighting	
		levels and usage	Lighting retrofit at Fort William Gardens

	Business case model initiated for installation of LED streetlights
	Lighting Retrofit at Front and Egan Public Works Yard including motion sensors

FOCUS AREA	ACTION	OBJECTIVE	2012 Progress
ORGANIZATIONAL	Performance &	To develop strategy	Fire Services, 55 plus Centre and EMS staff
INTEGRATION	Training	to incorporate energy management into the accountability of employee manuals, job descriptions and performance reviews as required	promoting energy conservation amongst employees
	Resource Management	To develop policy to build in energy management into the requirements of all external service providers	Parking Authority working with Parkade users to ensure lighting levels meet needs without waste

# **Projects**

FOCUS AREA	ACTION	OBJECTIVE	2012 Progress
ENERGY SUPPLY	Demand Side	To investigate	Water Pollution Control Plant participating in
MANAGEMENT	Optimization	opportunities to match demand size	demand response program
		load shifting to optimize cost	Investigation into feasibility of other facilities to participate in demand response programs
	Risk Management	Establish metric to evaluate the success of the purchasing	Progress to be reported in 2013.
		policy	

FOCUS AREA	ACTION	OBJECTIVE	2012 Progress
ENERGY USE IN	Investment Grade –	To develop criteria	Energy audits performed at North Central Fire
FACILITIES	Comprehensive Audits	to determine future years facilities scheduled for audits	Station and Balmoral Police Station
	Commissioning and Re-	To develop	Control re-commissioning at CGC

Commissioning	comprehensive	
	testing to verify	
	that systems and	
	equipment perform	
	to specifications	

FOCUS AREA	ACTION	OBJECTIVE	2012 Progress
EQUIPMENT EFFICIENCIES	System Upgrades	To develop implementation plans for system/process improvements	Updated and installed Building Automation Systems in various facilities  Replacement of windows, doors, weather stripping and installation in various facilities
	Standards	Develop policy for energy efficient guidelines and equipment specifications for major renovations and new	Superior North EMS District Headquarters LEED Gold Standard Building  Mountview Cemetery built utilizing energy efficient guidelines and principles
	Equipment and Building Operational Improvements	construction projects  To undertake equipment and building operations	HVAC upgrades in Volunteer Pool  Occupancy sensors installed in various facilities
		retrofits and improvements so energy efficiency is actioned – ie: variable speed drives, occupancy	Ongoing preventative maintenance on heating systems in Fire Stations  Installation of LED Exit lighting at various facilities
		sensors, programmable thermostats etc.	Installation of low flow toilets and shower heads in various facilities
			Chiller core replacement at CGC
			Data Centre installed a new energy efficient A/C unit and new uninterruptible power supply
			Installation of infrared heaters at Mountdale Public Works Yard
	New and Emerging Technology	To undertake pilot projects to determine benefits/ weakness of new and	LED office lighting and solar tubes installed in Front and Egan Administration Building as pilot project
		emerging energy technology as applicable for Corporate use	Solar PV Roof top projects with TB Hydro  Renewable projects – City of Thunder Bay and Thunder Bay Hydro

Capital Asset Renewal Program	To develop strategy and sustainable funding model to ensure energy efficiency is incorporated within the asset renewal program	Roof repairs at Volunteer Pool  Building envelope improvements at various facilities  New boiler & soft starts on heat pumps at Balmoral Police Station  Heat pumps at Victoriaville Civic Centre and 55 plus Centre  Mechanical upgrades at Volunteer Pool and Grandview Arena
Green Fleet Implementation Plan	To implement strategies outlined within Green Fleet Implementation Plan	Completed Fleet Rationalization and Utilization Study  Increased use of low power LED vehicle lighting to reduce vehicle idling  Replaced 35 older vehicles with new Tier 3 EPA emissions standards vehicles  Introduced electric engine cooling systems for new and existing transit buses which improve fuel efficiency by 9%  Use of retread tires for transit buses and heavy equipment  Continue to use B5 and B10 biodiesel blends all year

FOCUS AREA	ACTION	OBJECTIVE	2012 Progress
ORGANIZATIONAL	Energy Management	To incorporate	Fleet education and orientation for all new
INTEGRATION	Training	energy	hires
		management	
		training into	
		employee	
		orientation and	
		future training	
		opportunities	
		offered through	
		Human Resources	