



earth  care
Thunder Bay
sustainable by nature

Annual Report 2015

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What is EarthCare?

EarthCare Thunder Bay is a partnership between the City of Thunder Bay and the community to work together on issues of community sustainability, climate adaptation, and greenhouse gas reduction. Our mission is to lead the community in securing the environmental health of our region, and thereby improve the social, cultural and economic wellbeing of future generations.

There are 11 Working Groups (WG) that operate under the guidance of EarthCare, providing a point of entry for the participation and engagement of the public and other stakeholders in the implementation of the EarthCare Sustainability Plan. Each WG represents an area essential to community sustainability, focusing on issues of air, climate adaptation, community greening, education, energy, food, green building, land use planning, mobility (active transportation, transit, walkability), waste, and water. The WGs are made up of stakeholders representing all sectors: residential, industrial, commercial, and institutional. Together, they have worked to develop and implement the EarthCare Sustainability Plan.

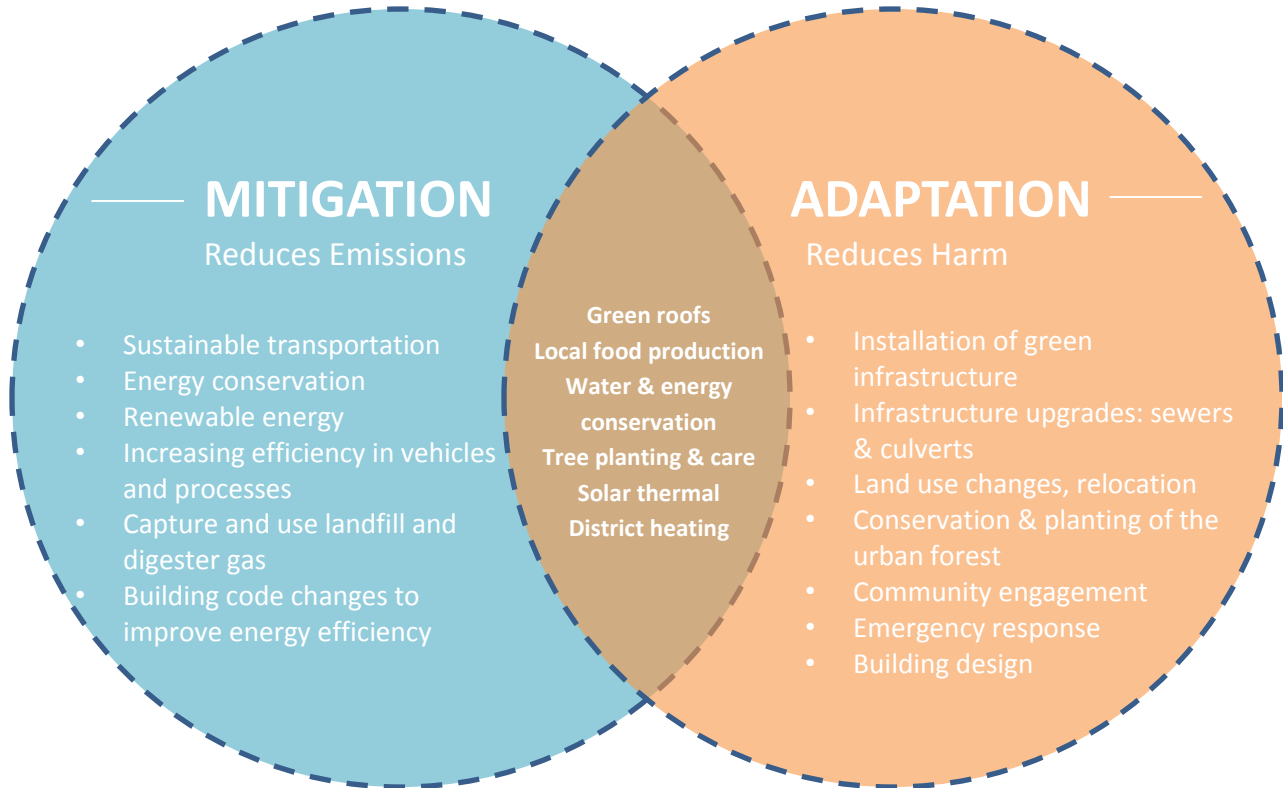
The Sustainability Plan is a strategic document, the implementation of which supports the goals of reducing greenhouse gas (GHG) emissions, becoming more climate-resilient, and creating a more sustainable Thunder Bay. The plan encompasses everything that makes a community healthy and happy, supporting the pillars of the City's Strategic Plan: to be connected, healthy, vibrant and strong.



Evidence shows that trees and green-space help to reduce crime; that walkable cities not only reduce GHG emissions and improve air quality, but also 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.

Introduction

EarthCare has always had a strong focus on climate mitigation – it has been the foundation of our programming since 2008 when the first Community Environmental Action Plan (CEAP) was released. However, over the past couple years EarthCare has steadily been increasing priority toward climate adaptation, and in 2015 it saw the adoption of the City’s first Climate Adaptation Strategy. The strategy ultimately is to help build community resilience to reduce the risks inherent in climate change and take advantage of opportunities. By completing the strategy, the City accomplished three of a five milestone process, and is now beginning its fourth milestone: implementation.



Climate adaptation is an important part of the sustainability equation. Both mitigation and adaptation help us envision a stronger blueprint and way forward to creating a more livable Thunder Bay.

In 2013, the new Sustainability Plan was built on a solid review of five years of implementing the CEAP, lessons learned, as well as meaningful and broad public consultation via open houses, surveys, and an online platform. The result is an even richer, strategic document that builds on our history of mitigation, but also further embeds adaptation.

Our community has come a long way since the adoption of the CEAP in 2008. The Sustainability Plan and now the Climate Adaptation Strategy reflects that sophistication and progression. Both documents now provide clear steps for moving forward and EarthCare will continue to represent the community: bridging community needs and wants with long-term planning of municipal investments that are resilient, evidence-based, and achieve multiple co-benefits.

Thank you to the EarthCare Advisory Committee of Council, EarthCare staff, the Working Groups, and Community Partners who are building the vision for a sustainable community. The following Annual Report demonstrates progress achieved through EarthCare and its partners in both the community and the Corporation.

Working Groups

Local action is one of the most meaningful and effective ways of addressing the challenges we face at a global scale. It also has the co-benefit of creating a more livable community. EarthCare has eleven Working Groups 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 terms of reporting, 2015 was a crossover year, with Working Groups still focused on ongoing projects stemming from the CEAP, as well as new directions associated with the Sustainability Plan. The Working Groups fall under the following thematic areas:

Sustainable Development



Community Lifestyle



Natural Environment



Our thanks also go to the EarthCare Advisory Committee of Council who advises Council on the overarching implementation of the Sustainability Plan.



From l-r Councillor Frank Pullia, Jane Todd, Brad Doff, Linda Douglas, Ashleigh Marchl, Shannon Costigan (co-Chair), Councillor Andrew Foulds (Chair), Sandy Stiles, Dean Stamler, Michelle Warywoda. Missing: Lynn Duffield

Why a Sustainability Plan?

Long-term planning of municipal investments should be deliberate, evidence-based, achieve multiple co-benefits, and reflect community needs and wants. EarthCare tries to represent this balance at all times by providing an interface with the broader community to work on the overarching goal of the plan which is reducing greenhouse gas (GHG) emissions and creating a more sustainable and resilient Thunder Bay.

Around the world, temperature and precipitation measurements are confirming that the climate is changing. Extreme weather events, which are costly and have social impacts, are becoming more frequent. 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.

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.

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.

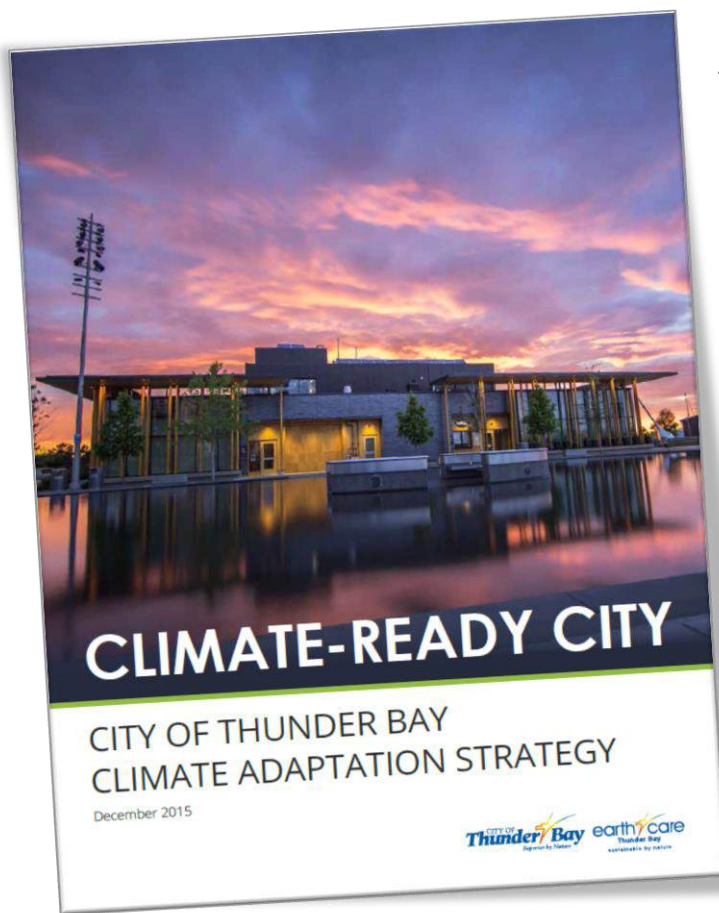
While the City of Thunder Bay is the keeper of the plan, the plan is multi-sectoral in that many of its actions are undertaken by individuals, businesses, institutions, and organizations, as well as the local government. The City of Thunder Bay is taking steps to create a more livable community, to reduce 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.



For more information or to download the Sustainability Plan, please visit: www.EarthcareThunderbay.ca

Why a Climate Adaptation Strategy?

Thousands of scientists around the world are warning that the Earth's climate system has been changing in an unprecedented way since the 1950s. The impacts of these large changes in weather patterns are already being felt globally and locally. Prolonged heat waves, torrential rainstorms, windstorms, and droughts are increasing throughout Ontario. In Thunder Bay, severe storms, extreme rain events, and the extreme cold temperatures experienced in recent years show that these types of impacts have the potential to affect all City Departments and can incur high costs to the community as a whole. In the face of climate change, the City of Thunder Bay recognizes the need for adaptation. While mitigation is necessary to reduce the rate and magnitude of climate change, adaptation is essential to reduce the damages from climate change impacts that cannot be avoided. Integrating climate adaptation across the Corporation provides an opportunity to coordinate decision-making and planning efforts in order to reduce vulnerabilities and build resilience in all departments, thereby minimizing the severity of the resulting impacts and taking advantage of opportunities.



The impacts of climate change have been recognized as an important issue in Canada, Ontario, the Great Lakes Region, and for the City of Thunder Bay. Ontario's Great Lakes Strategy (2012) lists climate change as one of the main challenges facing the cities in the Great Lakes basin and the Government of Ontario is taking measures to adapt to the unavoidable impacts of changing weather patterns. The Ontario Ministry of the Environment and Climate Change released a climate adaptation strategy and action plan in 2011 and a discussion paper in 2015 to address climate impacts and climate change in the province. Both documents acknowledge that adapting to climate change goes beyond the mandate of any one ministry, and recognize the need for adaptation in the communities where the consequences are felt. The Lake Superior Climate Change Impacts and Adaptation Report (2014), completed under the Lakewide Action Management Plan, also

states that it is important for stakeholders and partners in the Lake Superior region to work together to adopt and implement climate management strategies based on current knowledge, and to gather information to inform future climate change adaptation actions.

It is widely recognized that the impacts of climate change affect the services and infrastructure of local governments. Thankfully, municipalities possess many of the tools necessary to increase resilience such as emergency response groups, standards, codes, and official plans. The 2014 Ontario Provincial Policy Statement refers to climate change in a number of policies and mandates local planning authorities to support climate change adaptation through land use and development decisions. Ultimately, the purpose of developing a Climate Adaptation Strategy for the Corporation is to: 1) identify the potential impacts related to climate change in Thunder Bay and the risks they pose to our various service sectors and to our community; and, 2) propose possible actions to reduce risk and vulnerability associated with climate change impacts through adaptive measures. The strategy will complement existing municipal processes as well as ongoing climate adaptation initiatives of the Province of Ontario and will serve as a resource for other municipalities in Northern Ontario, particularly along Lake Superior's North Shore. Having a Climate Adaptation Strategy will also place the City in a strong position to access potential sources of funding as the federal and provincial governments integrate climate change adaptation and resilience considerations in infrastructure and asset planning decisions.

For more information or to download the Climate Adaptation Strategy, please visit: www.ClimateReadyCity.ca

ENERGY



Goal: To promote the wise use of energy and the transition to a carbon neutral future. By 2020 the community of Thunder Bay will reduce greenhouse gas emissions by 20% below 2009 levels.

Progress Highlights:

- In 2015, overall GHG emissions for the Corporation decreased by 4.4% from the 2009 baseline levels. Electricity related emissions declined by 14% and natural gas by 2%, while gasoline related emissions increased by 5.7%, and diesel emissions by 3.5% from 2009 levels. These 2015 figures were provided by the Asset Management Division of Community Services, which monitors energy consumption and GHG emissions across the Corporation, and reports annual consumption and emission totals to the Ministry of Energy under O. Reg. 397/11: Energy Conservation and Demand Management Plans and as part of the EarthCare Annual Report (see appendix for details).
- Continuous progress on and implementation of Strategic Initiatives outlined in the Strategic Approach to Energy Management Plan (see appendix for details).
- The City of Thunder Bay in strategic alliance with the Thunder Bay Hydro SEED Initiative (Sustainable Electric Energy Development) have developed renewable energy projects that include the landfill gas generating station at the Mapleward Road Solid Waste and Recycling Facility and rooftop solar PV installations on City buildings, which generated approximately 14,200,000 kWhs of renewable electricity in 2015.
- Continued the LED residential street light retrofit program.
- Continued to monitor GHG emissions.

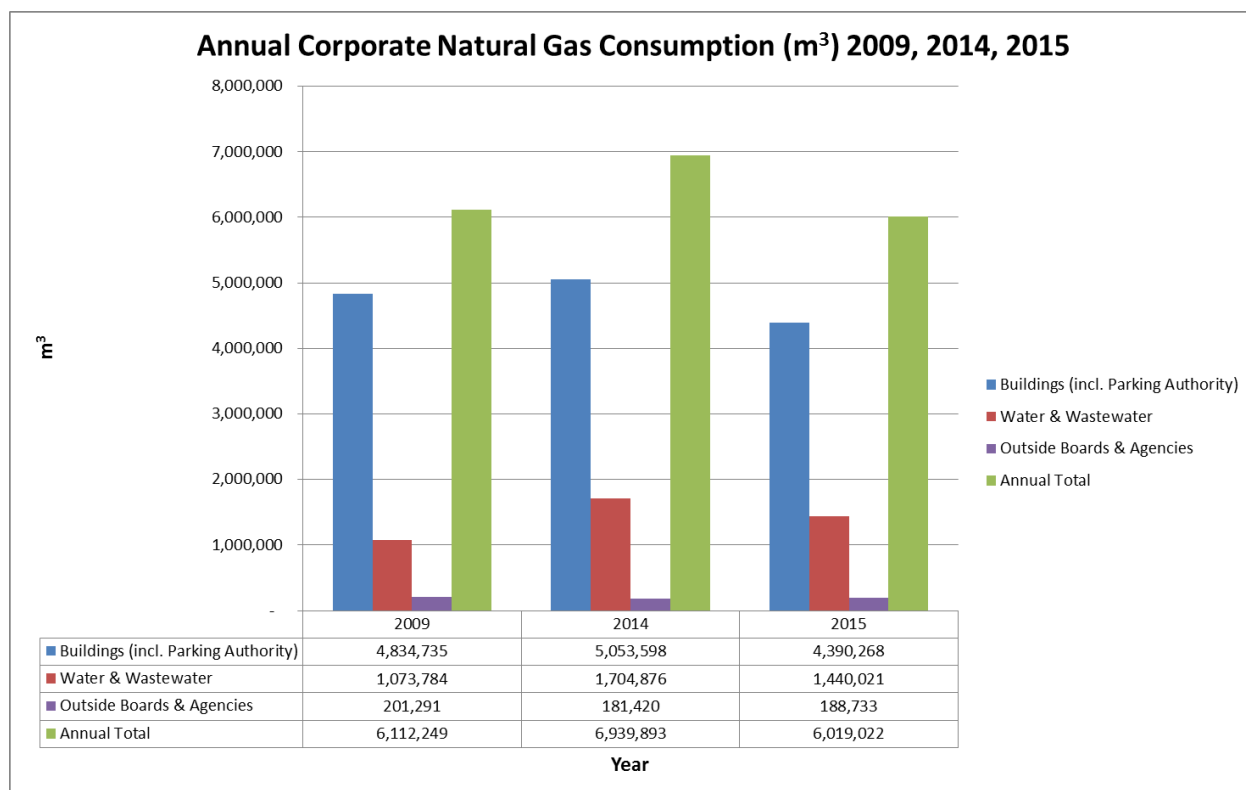
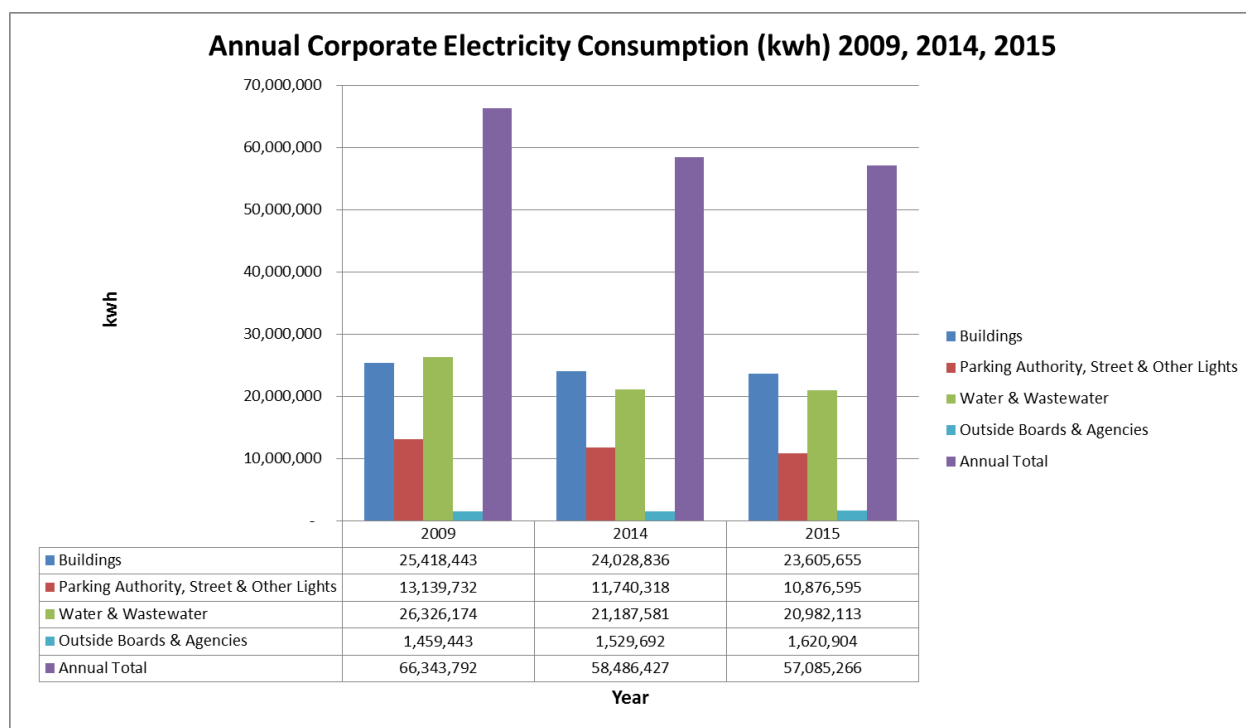
For a more comprehensive list of Energy updates please see the Corporate Energy Management Plan (Appendix)



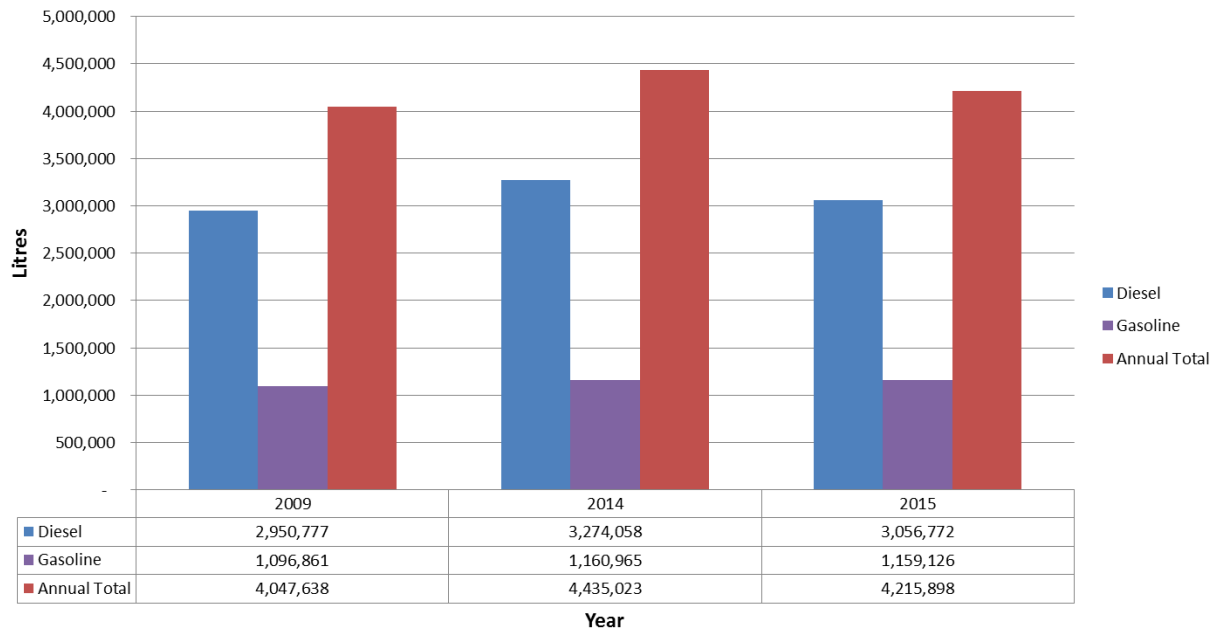
Energy WG Members

Hugh Briggs, Lakehead University
Vanessa DeGiacomo-Zwaresch, CTB, Energy Analyst
Andrea Goold, Ontario Power Generation
Larry Hogard, Superior Inspections
Brad Doff, CTB, Sustainability Coordinator
Kerstin Muth, Environment North, Chair
Jane Todd, EAC Member & Citizen
Bill Willis, Thunder Bay Hydro

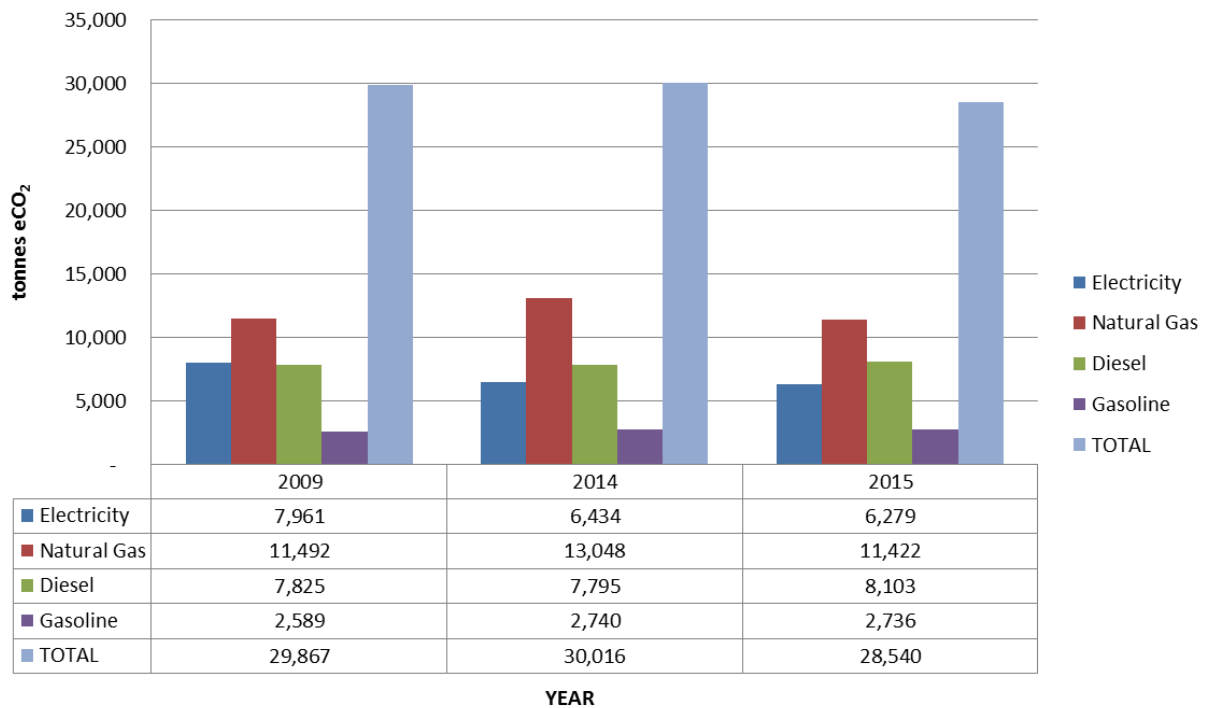
The following charts are based on corporate tracking of data through the Asset Management Division:



Annual Corporate Fuel Consumption (Litres) 2009, 2014, 2015



Total Corporate Greenhouse Gas Emissions (tonnes eCO₂) 2009, 2014, 2015



GREEN BUILDING



Progress Highlights:

- Review and adjust operational processes and controls of the Natatorium at the Canada Games Complex to coincide with facility and programming requirements.
- Installation of automated controls at Memorial Avenue Storm Sewer Station and Hazelwood Reservoir.
- Developed a procedure to recommend the purchase of Energy Star rated energy consuming products or most energy efficient product if Energy Star not available.
- LED Lighting project for the Canada Games Complex Natatorium.
- LED lighting installed in various locations at the Canada Games Complex, Armstrong EMS station, Balmoral Police Station, among others listed in the Corporate Energy Management Plan (Appendix 1).
- Energy audit completed for the Community Services Administration Building (formally Pool 6) and Front Street Public Works Yard.
- Installation of high speed bay doors at Transit.

For a more comprehensive list of Green Building updates please see the Corporate Energy Management Plan (Appendix)



Green Building WG Members

Brad Doff, CTB Sustainability Coordinator
Gerry Broere, CTB, Director Asset Management
Construction/Renovation Services
Tom Cook, Citizen, Chair
Larry Hogard, Superior Inspections
Sarah Kerton, CTB Sustainability Coordinator
Patrick Larocque, CMHC
Don Rutledge, EcoSuperior
Chris Todd, Citizen

CLIMATE ADAPTATION



Goal: Build community resilience to reduce the risks inherent in climate change, and take advantage of opportunities for sustainable initiatives associated with current and future impacts of climate change.

Progress Highlights:

- EarthCare continued to lead the development of a Climate Adaptation Strategy for the Corporation of the City of Thunder Bay with the support of Council. The final strategy was adopted by City Council in December 2015.
- In March 2015, the City completed the second milestone of ICLEI Canada's internationally-recognized Building Adaptive & Resilient Communities (BARC) Program. Later in December, the third Milestone was completed with the development of the Climate Adaptation Strategy.
- External funding was obtained through the Ministry of the Environment and Climate Change to fund the development of milestone three: Climate Adaptation Action Plan.
- In September 2015, the EarthCare Climate Adaptation Working Group officially commenced, connecting academia, community, IC&I and The City of Thunder Bay around issues of adaptation.
- A June open house was held to present the results from the



Climate Adaptation Working Group Members

Shannon Costigan, Chair, EcoSuperior
Jason MacLean, Professor, Lakehead University
Wayne Fletcher, Citizen
Heather McLeod, Citizen
Heather Stowell, Citizen
Ken Deacon, Professor, Lakehead University
Ashleigh Marchl, Resolute Forest Products
Julia Prinselaar, Eco Superior
Paul Berger, Professor, Lakehead University
Lindsay Galway, Professor, Lakehead University
Sarah Kerton, CTB Sustainability Coordinator
Roopa Rakshit, Board Member, Environment North
Kristin Maenpaa, Blue Heron Consulting
Kayla Dixon, Director of Eng. & Ops, City of Thunder Bay
Brad Doff, Sustainability Coordinator, City of Thunder Bay
Curniss McGoldrick, EarthCare, City of Thunder Bay

Climate Adaptation Action Plan to the community. Following the adoption of the strategy by Council, an open house was held to launch the official City of Thunder Bay Climate Adaptation Strategy in December.

- The City's Executive Management Team renewed their commitment to completing the Corporate Climate Adaptation Strategy in 2015.
- EarthCare was recognized as an example of progressive municipal governance and was asked to share at over fifteen meetings, conferences, workshops, and webinars to audiences across North America.
- The City signed on to the Compact of Mayors demonstrating leadership in both climate mitigation and adaptation.

“The best way to predict the future is to design it.”

-Buckminster Fuller



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.

Progress Highlights:

- Thunder Bay and Area Food Strategy working groups have evolved to be centered around projects and the 12 working groups met a total of 49 times.
- The Food Strategy Implementation Plan was presented to City of Thunder Bay Council in the spring of 2015.
- Early in 2015, Supply Management committed to pursuing 6 procurement objectives for 2015, 3 of which the Food Strategy provided assistance with, including the food waste audit, engaging residents of long-term care (tour, meet your farmer events), promoting the City's efforts to change procurement practices and sharing the model with other institutions (Belluz media tour, tour with food service managers from across the city).

Local food is about getting the freshest and best-tasting food. It's also about connecting to and strengthening your community.

-Anna Lappé

- The City's Tourism department adopted food tourism as a greater part of its mandate. The Thunder Bay Experience Guide 2015 is themed around food tourism and includes an article by the Food Strategy on the growing local food movement. This magazine is widely distributed with over 100,000 printed copies and 17,000 downloads a year.

- In 2015, the City of Thunder Bay stated its support for the Food Strategy's implementation through the Corporation's 2016-2020 Strategic Plan

- Two new community gardens were started in 2015. The growing number of community gardens reflects the increased interest in gardening and self-sufficiency, as well as the stable support of the City through the community garden policy.
- On April 22, 2015, the Thunder Bay and Area Food Strategy, EarthCare Thunder Bay, and Roots to Harvest held an “Ideas to Action Café” at the Finlandia Hall for Thunder Bay residents interested in urban agriculture. The goal was to involve and support more people in transforming neighbourhoods, communities, and workplaces through small-scale urban agriculture interventions. A total of 31 ideas were submitted. Participants were able to refine their ideas through discussions with experts from the City (e.g. Planning Services, Parks, By-Law), Health Unit (e.g. Inspections), and community organizations involved in various change efforts.



The number of community gardens has increased significantly since 2008.

The Food Action Network tracks the following indicators on an annual basis:

Indicator:	2008	2009	2010	2011	2012	2013	2014	2015
# of community gardens	5	6	6	7	10	14	16	18
# of school gardens	2	2	3	4	8	16	16	16

For a more comprehensive list of food indicators please visit tbayfoostrategy.ca directly.



Food Strategy Steering Committee Members

Councillor Rebecca Johnson, Co-chair
 Councillor Bernie Kamphof, Co-Chair, Oliver Paipoonge
 Kendal Donahue, Coordinator, Food Strategy
 Ann Magiskan, Aboriginal Liaison, CTB
 Catherine Schwartz Mendez, Nutritionist, TBDHU
 Connie Nelson, Food Security Network, LU
 Dan Munshaw, Manager, Supply Management,
 CTB Ellen Mortfield, Executive Director, EcoSuperior
 Erin Beagle, Executive Director, Roots to Harvest
 Gwen O'Reilly, Director, N. Ont. Women's Centre
 Henriët DeBruin, President, TB Fed. of Agriculture
 Jim Stady, Owner, Eat Local Pizza
 Julie Stachiw, Nutritionist, Regional Hospital

Jane Todd, EarthCare Advisory Committee
 Jody Mitchell, Roots to Harvest
 Julee Boan, Boreal Program Manager, Ontario Nature
 Silva Sawula, Manager, TBDHU
 Leslie McEachern, Manager, Dev. Services, CTB
 Thora Cartlidge, Planner, CTB
 Brad Doff, Coordinator, EarthCare
 Karen O'Gorman, Councillor, Gillies
 Rudy Buitenhuis, Agriculture Dev. Advisor, OMAF
 Madge Richardson, Executive Director, NSWPB
 Tarlok Sahota, Director of Research and Business, TBARS
 Volker Kromm, Executive Director, RFDA

MOBILITY



Goal: Inspire and influence the evolution of integrated urban mobility that is efficient, affordable, and accessible.

Progress Highlights:

- The Arundel Active Living corridor was reconfigured to now include a wider shared-use area that features Thunder Bay's first trail protected by bollards. The bike lane on the other side now has a painted buffer to create more separation from automobiles. New signage was also installed along the trail to help people know how the trail connects to the rest of the trail system.
- Hudson Avenue was repaved last year, and in the process, also got widened to extend the Arundel Active Living Corridor onto Hudson Ave., all the way to Huron Ave. This corridor is now 3.5 kms long. The Hudson portion includes new signage, a buffered area, floating bus stops, and protected parking.
- The Bay Street Active Living Corridor was improved with new sidewalks from High Street to Marlborough Street. Along with these new sidewalks is a new multi-use trail that connects across Carrick Park. The trail is fully-accessible.
- Safe Cycling Thunder Bay had 667 people participate in 52 cycling training courses in 2015. With stronger partnerships with the Thunder Bay Police, Definitely Superior Art Gallery, Urban Forestry, and more, the program is reaching new audiences all the time. Additionally, 10 people became certified cycling instructors this year.
- City of Thunder Bay (with help of Walkability Committee) applied for Walk Friendly Designation and received an Honourable Mention from Walk Friendly Ontario.
- City of Thunder Bay received a Bronze Bike Friendly Community Award from Share the Road Cycling Coalition.
- Seven Thunder Bay businesses received Bike Friendly Business (BFB) designations from Share the Road Cycling Coalition:
 - EcoSuperior Environmental Programs became one of the first Gold level Bicycle Friendly Businesses in Ontario.
 - Lakehead University Student Union, the Thunder Bay District Health Unit,

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

-H.G. Wells, 1904

and Shout Media were all honoured with Silver BFB awards.

- Thunder Bay Transit, The Thunder Bay Regional Health Sciences Centre and WSP Thunder Bay all received Bronze awards.
- Zoom Courier and the Bay Area Credit Union received honourable mentions for their submissions.

Commuter Challenge Thunder Bay:

- The Commuter Challenge ran from June 1-7, with 756 people registered in Thunder Bay. 547 people participated by logging at least one trip onto commuterchallenge.ca and 66 workplaces participated. There were 38,226 kilometres tracked and 2,563 litres of fuel saved, representing roughly \$3,127 saved in fuel costs in a week. There were also 560,709 calories burned, and 5,797 kg of greenhouse gases avoided. Many people tried out different ways to get around such as:



263 people tried carpooling



221 people tried walking



302 people tried cycling



65 people tried transit



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	2013	2014	2015
# of traffic injuries to pedestrians (CTB Traffic Collision Analysis Program)	62	73	28	46	43	52	33	26	59
# of uses of bike racks on buses	-	-	7,290	13,746	21,060	18,516	18,974	18613	19,974
# of transit rider trips per capita	28.6	31.2	33	31.7	33.01	33.61	33.39	34.66	30.33
Traffic Volume (vehicle km traveled/ lane km on major roads – OMBI data – in millions)	1,501	1,472	1,333	1,361	1,372	1,334	1,280	1,280	1,326.8
kms of bike-lanes and sharrows	0	0	0	10	20	29.8	31.7	33.6	36.5
kms of paved multi-use trails	33.4	35.4	36	36	41	46	47	49	51
# of presentations on Active Transportation	-	2	14	30	43	77	70	41	250
Dedicated AT Funding (in thousands)	-	-	28.5	130	130	135	135	180	250



Mobility Working Group Members

Thora Cartlidge, CTB, Planning
Shannon Costigan, EarthCare Advisory Committee
Michael Dorval, Confederation College
Adam Krupper, CTB, Mobility Chair
David Noonan, Citizen
Bob Payne, Lakehead University
Gordon Sheppard, Citizen
Stasia Starr, Thunder Bay District Health Unit
Mike Vogrig, CTB, Engineering
Barry Wolframe, Citizen
Richard Boon, Canadian Diabetes Association
Linda Bruins, Evergreen Neighbourhood Association
Jay Eingold, EcoSuperior

Cathy Farrell, Citizen
Susan Forbes, Citizen
Marilyn Grudniski, Little Lions Waldorf Daycare
Jon Hendel, CTB, Transit
Hanna Janiec, TBH DU
Sarah Kerton, CTB, Sustainability Coordinator
Ryan Love, CTB, Engineering
Keith Nymark, Citizen
Anne Ostrom, TBDHU, Chair
Ashley Priem, EcoSuperior
Werner Schwar, CTB, Parks
Tessa Soderberg, Accessibility Advisory Committee

WASTE



Goal: Thunder Bay progresses towards zero waste through an integrated waste management approach.

Progress Highlights:

- The City of Thunder Bay's second curbside battery recycling program ran in 2015, consisting of a one-day collection on the regularly scheduled recycling day in both the spring and fall. It resulted in 3.3 metric tonnes of additional batteries being recycled.
- Thunder Bay's third Treasure Exchange Days took place with the goal of actively promoting reuse within the community and to reduce the amount of waste requiring end of life management. Residents were encouraged to place items like furniture, small appliances and toys at the curb for free and tour their neighbourhoods to see what great treasures they could find. It now will be an ongoing program moving forward.
- Starting in the fall of 2015 the City moved to the use of kraft (paper) bags only for the curbside collection of leaf and yard waste. Kraft bags were the preferred option as they decompose naturally, and therefore, can be placed directly in the compost pile at the City of Thunder Bay Solid Waste and Recycling Facility. The result is a rich soil additive for flower gardens and lawns that is given away to residents free of charge each spring.
- Elimination of the use of plastic bags for leaf and yard waste collection has resulted in operational cost savings (i.e. de-bagging of material) and no plastic contamination in the finished compost.
- During free disposal weeks at the Landfill Site in



Waste Working Group Members

Patrick Fenlon, PackPros Plus Ltd, Chair
Glenn Berst, St. Joseph's Care Group
Rod Bessel, Lakehead Public Schools
Cathy Bevilacqua, CTB, Supply Management Div.
Jay Eingold, Operations Supervisor, EcoSuperior
Rebecca Johnson, City Councillor
Sarah Kerton, CTB, Sustainability Coordinator
Lucy Laframboise, Citizen
Natasha Sozio, ReCool Canada
Randy Mehagan, Thunder Bay RHSC
Dan Munshaw, CTB, Manager, Supply Mgt. Div.
Jason Sherband, CTB, Manager Waste & Recycling

2014 and 2015, residents heading to the site were encouraged to check their loads for gently used items to donate to Habitat for Humanity at their tractor-trailer, which was located at the landfill site for these special events. Habitat for Humanity also set up at the site on an additional four Saturdays between May and June in 2015. At the conclusion of the Habitat for Humanity Days at the site, items collected were taken to the Habitat for Humanity Restore for clean-up and resale. Proceeds from the sale of donated items at the Restore are used to support Habitat programs in Thunder Bay. The total amount of reusable items and material that was collected at the site in 2014 and 2015 was 19 metric tonnes.

- In 2015, the City of Thunder Bay was successful in securing external funding to undertake a food waste audit at one of our longterm care facilities. The audit measured food and packaging waste over a five day period. As an outcome, meaningful food and packaging waste benchmark measures were established, process change has occurred reducing food wastage, and recycling initiatives were implemented eliminating disposal of plastic pails. Process improvement continues to be implemented.

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

Indicator:	2007	2008	2009	2010	2011	2012	2013	2014	2015
Amount diverted through the HHW Depot in Metric Tonnes	178	157	165	276	362	235 ¹	266	247	271
Organic waste diverted from landfill through City programs (IC&I Sector) in Metric Tonnes	1,625	1,387	922	1,093	1,106	1081	533 ²	1166	142 ³
Organic waste diverted from landfill through City programs (Residential Sector) in Metric Tonnes	941	900	1,181	1,384	1,351	1408	1072 ⁴	2027	2,410
Total residential waste generated in Metric Tonnes	48,100	50,500	50,100	52,800	55,400	62,200	52,319	51,592	49,329
Total residential waste diverted in Metric Tonnes	12,800	13,900	15,300	16,500	18,000	18,600	10,145	11,122	11,851
% of residential solid waste diverted from landfill	27%	28%	30%	31%	32.5%	30% ⁵	20%	22%	24%

¹ 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

² The diversion rate is down significantly as the backyard home composting diversion calculation was adjusted this year to reflect current industry practice (as identified through the Solid Waste Management Strategy consultation process in 2013).

³ ICI Sector organic waste diverted down due to a more accurate weighing process being used to differentiate between ICI and residential organic waste being brought across the scales.

⁴ The diversion rate is down significantly as the composting diversion calculation was adjusted this year to reflect current industry practice (as identified through the SWMS consultation process in 2013).

⁵ 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.

COMMUNITY GREENING



Progress Highlights:

- The Citizen Pruner Program pruned 71 trees and trained 17 new volunteers.
- The Tree Stewardship Program planted 31 trees and replaced 11.
- The City's Urban Forestry Section completed its third year Tree Watering Bag program which offers two years of watering for young trees.
- The Memorial Avenue Low Impact Development (LID) site was completed in 2015 for stormwater management and to beautify the streetscape.
- Arbor Day 2015 continued with a multi-year planting plan for Parkdale Park; 20 new trees were planted, supported by the City's Clean Green & Beautiful Committee.
- Biodiversity Day was held by EcoSuperior at the Central Community Gardens. The EarthCare Community Greening Working Group supported it by volunteering at different stations: painting bee houses, scavenger hunt, planting wildflowers and an EarthCare table.
- 2015 was the second year that soil quality standards were required for all city tree planting projects.
- The Image Route Planting project was launched, developing a strategy to plant trees along the city's image routes beginning in 2016/2017.
- Funding was acquired through the Northern Ontario Heritage Fund Corporation to support a 1-year intern to coordinate the Image Route Planting project for the City, supported by City's Clean, Green and Beautiful Committee.
- The Notable Tree Discovery Ride was offered with a focus on safe cycling and notable trees in the community. 20 riders participated.
- The Community Greening Working Group weeded and inspected the Beverly Street Low Impact Development facility which was installed in 2013.
- City of Thunder Bay Emerald Ash Borer (EAB) Strategic Management Plan was developed and will be brought to Council in 2016.

Citizen Pruner Program 2015



134 total volunteer
hours committed
to pruning!

- 60 EAB prism traps were installed and inspected by the City within city limits. No EAB were found.
- EAB awareness campaign was continued which included the Ribbon Campaign & EAB awareness day.
- A tree inventory of all public streets and most park trees was completed in 2015.
- A tree risk assessment was completed for all street trees in 2015.
- The City of Thunder Bay joined the Ontario Green Infrastructure Coalition to lobby the provincial government to support green infrastructure.
- An Invasive Species Strategy workshop was held by the Invasive Species Centre and Invasive Species Council (EDRR reporting web site) in Thunder Bay.

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	2013	2014	2015
# trees planted annually vs. removals	n/a	-109	34	452	118	192	212	-416*
# trees planted through the tree stewardship program	83	97	59	60	78	40	38	42
% of municipality dedicated to parkland	5.1	5.1	5.1	4.6 ⁶	4.6	4.6	4.7	4.7

**The removals have increased due in a large part to the fact that we are now keeping record of all trees removed by Thunder Bay Hydro (268 in 2015). As well, the City Golf courses removed a large number of mature trees (80 in 2015) that were dead or dying. There were also some subdivision plantings that were completed but not yet accepted, and therefore weren't registered as City ownership).*

The best time to plant a tree is twenty years ago. The second best time is now.

- Chinese Proverb



Community Greening WG Members

Lee Amelia, CTB, Parks, Chair
Brad Doff, CTB, Sustainability Coordinator
Lynn Duffield, EarthCare Advisory Committee
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
James Taylor, CTB, Special Projects Asset Mngt.
Shelley Vescio, CTB, City Forester
Rena Viehbeck, CTB, Parks, Chair

⁶ 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.

WATER



Goal: To ensure that water resources in the local watershed are protected and enhanced through the engagement of various stakeholders.

Progress Highlights:

- The second annual Canada Water Week family event celebration was held at the Baggage Building with over 400 in attendance.
- EarthCare Thunder Bay presented to mayors at the Great Lakes St. Lawrence Cities Initiative conference in June relating to the Memorial Avenue Low Impact Development project.
- Twenty rain garden rebates were offered to citizens to encourage the development of rain gardens throughout the city.
- The Low Impact Development on Memorial Avenue was completed which was partially funded by the RBC Blue Planet Fund as part of a joint project with the City of Hamilton and administered through the Great Lake St. Lawrence Cities Initiative. This project included public engagement, public planting of the site and media launch.
- City Administration and EarthCare led a webinar to audiences across North America showcasing the Memorial LID. Over 60 mayors and city administration throughout the Great Lakes attended.
- City Administration and EarthCare worked with the local Blue Dot Tour community to develop a right to a healthy environment declaration passed by Council.
- City of Thunder Bay continued to fund EcoSuperior's Water Wise Programs which focus on water conservation, water protection, and promotion of our Superior tap water!
- Funded by the City of Thunder Bay and delivered by EcoSuperior, rain barrels continued to be sold to capture run-off and conserve water. Since 1997, EcoSuperior has sold more than 9,200

“The environment and the economy are really both two sides of the same coin. If we cannot sustain the environment, we cannot sustain ourselves.”

—Wangari Maathai

rain barrels!

- All combined sewer overflows were monitored and reported in 2015 as per the requirements of the Wastewater Systems Effluent Regulations.
- A public education and outreach program for privately owned stormwater systems, namely Oil Grit Separators, was started in 2014 and continued in 2015. The inspections noted in 2015 had a high compliance rate for the necessary maintenance issues from 2014.

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

Indicator	2007	2008	2009	2010	2011	2012	2013	2014	2015
Liters of treated water per capita per day (residential & ICI sectors)	442	407	400	391	369	369	347	352	389



Water Working Group Members

Jim Bailey, Remedial Action Plan Coordinator
Tammy Cook, Watershed Manager, LRCA
Shannon Costigan, EarthCare Advisory Committee
Dave Dutchak, CTB, Project Manager
Frank Edgson, Northshore Steelhead Association
Carl Goodwin, CTB, Process Engineer
Sarah Kerton, CTB, Sustainability Coordinator
Lucie Lavoie, EcoSuperior
Michelle McChristie, Great Lakes Advisor, MOE-CC
Curniss McGoldrick, CTB
Jamie Saunders, EcoSuperior

Werner Schwar, CTB, Coordinator Parks Planning
Josh Singh, 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

Going Forward

The EarthCare Sustainability Plan lays out the general direction that the community of Thunder Bay must take in order to reduce greenhouse gas emissions and continue transitioning to a more resilient, sustainable community. Throughout the Plan, needs are identified for continued local action, the importance of education, and the challenge of integrating environment, economy, and community. The Plan also demonstrates how citizens can make a difference at home, in the workplace, and in the community. It challenges the public to work with EarthCare to make Thunder Bay a sustainable city.

The Corporation of the City of Thunder Bay is the leader in bringing this Plan to fruition. Its ongoing implementation leads to many benefits, including a more resilient city in the face of a changing climate, enhanced community pride and health of local citizens, improved local environment, lower greenhouse gas emissions, cost savings, strengthened community partnerships, and the attraction and retention of new residents.

In 2016 EarthCare will focus on coordinating new low impact development projects throughout the community, implementing the Climate Adaptation Strategy throughout the many divisions and departments within the Corporation, launching the EarthCare website – a new portal for education and engagement with the community, and undertaking an education and awareness campaign with EarthCare Partners regarding sustainable stormwater approaches, among a variety of other working group projects.

The EarthCare Sustainability Plan presents an ambitious vision and specific set of actions for the Corporation of the City of Thunder Bay and its citizens. It has been an encouraging journey since the plan was implemented in 2014. Now together, over the next 5 years, it will continue to take this community on an exciting journey that will create new opportunities and ultimately develop a stronger, more livable City of Thunder Bay.



Appendix: Corporate Energy Management Plan, 2015 Report

The Strategic Approach to Corporate Energy Management Plan is a living document that provides a roadmap and builds internal corporate energy management knowledge and awareness. It also provides the foundation for successful energy management decisions and actions within all Corporate operations. The Strategic Approach to Corporate Energy Management serves as the City of Thunder Bay's Conservation and Demand Management (CDM) Plan as mandated under O.Reg 397/11 Energy Conservation and Demand Management Plans.

In 2015, the Corporate Energy Management Committee worked collaboratively within all Departments to implement the various strategic initiatives outlined in the Plan. The following table highlights the year's progress.

Process Improvements

FOCUS AREA	ACTION	OBJECTIVE	2015 PROGRESS
ENERGY DATA MANAGEMENT	Accessibility & Reporting	Provide access to Corporate Energy Management Tool (EMT) for energy data to all identified staff	<p>Working with Corporate Information Technology department to allow identified key staff access to energy data</p> <p>Working with Corporate Information Technology to explore energy management software including both internal and external options</p>
	Key Performance Indicators (KPI's)	Provide meaningful benchmarking indicators for all facilities	<p>Working to implement key performance indicators (KPI's) into reporting process to align with Green Energy Act and/or EarthCare</p> <ul style="list-style-type: none"> • Electricity and Natural Gas : Energy Intensity (Kwh/sqft and m3/sqf) • Fuels : L/100km or L/operating hours, and total VKT per year • Greenhouse Gas Emissions (tonnes eCO₂)

FOCUS AREA	ACTION	OBJECTIVE	2015 PROGRESS
ENERGY SUPPLY MANAGEMENT	Account Management	To establish a corporate Energy Innovation Reserve Fund with incentive funding to fund future energy initiatives	Developed framework and application process for use in 2016 for staff to access fund for innovative energy initiatives that align with the strategies in the Corporate Energy Management Plan
	Rate Optimization	To provide notification to procurement team by depts. of changes in operations that will affect consumption load requirements in future years	Continue quarterly meetings with Procurement team and appropriate staff to provide updates on Department/ Divisions consumption and upcoming known changes

FOCUS AREA	ACTION	OBJECTIVE	2015 PROGRESS
ENERGY USE IN FACILITIES	Facility Standards	To develop operational standards for building controls within facilities using Industry standards	Progress to be reported in 2016

FOCUS AREA	ACTION	OBJECTIVE	2015 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	<p>Review and adjust operational processes and controls of the Natatorium at the Canada Games Complex to coincide with facility and programming requirements</p> <p>Ongoing preventative maintenance within all Corporate Facilities</p> <p>Installation of separate switches for each radiant heater to allow for section heating at Current River Arena and Grandview Arena</p> <p>Installation of automated controls at Memorial Ave Storm Sewer Station and Hazelwood Reservoir</p>
	Energy Efficient Procurement	To develop policy for standards for the purchase of energy efficient equipment i.e.: Energy Star	Developed a procedure to recommend the purchase of Energy Star rated energy consuming products or most energy efficient product if Energy Star not available

FOCUS AREA	ACTION	OBJECTIVE	2015 PROGRESS
ORGANIZATIONAL INTEGRATION	Awareness and Participation	To develop a Corporate Energy Awareness Program to build internal capacity allowing Departments to make informed energy management decisions	<p>Fire Services promoting energy conservation with Personnel</p> <p>Community Auditorium promote energy conservation in all aspects of their operation and staff are dedicated to conserve energy where possible</p> <p>Investigated options and development of an Energy Engagement and Energy Awareness Program customized for the Corporation.</p>
	Incentive Awareness	To develop a process to ensure all Departments are aware of the available energy incentives that can be leveraged in planning energy management initiatives	<p>Maintain relationship with Thunder Bay Hydro and Union Gas representatives to keep informed of funding opportunities for energy efficient projects</p> <p>Participated in various Thunder Bay Hydro saveONenergy and Union Gas Energy Efficiency Incentive Programs</p>

Program Implementation

FOCUS AREA	ACTION	OBJECTIVE	2015 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	Requirements to be reviewed in 2016

FOCUS AREA	ACTION	OBJECTIVE	2015 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	<p>Quarterly meetings with Procurement staff and Financial Energy Committee to discuss Corporate commodity consumption, costs and annual hedge purchase of hydro, natural gas, and fuel.</p> <p>This information is presented to the Corporate Energy Management Committee semi-annually</p> <p>Worked with energy consultant and Supply Management to develop monthly reporting documentation for natural gas</p>

FOCUS AREA	ACTION	OBJECTIVE	2015 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 2016
	Customer Awareness	To develop programs to increase energy conservation awareness for customers ie: users of City facilities	<p>The Corporation submitted its 2013 consumption totals for prescribed facilities as part of the Green Energy Act. The data is available to the public through the City Clerk's Office and online on The City of Thunder Bay's website.</p> <p>The Corporate Energy Management Plan (CEMP) is available on the City's website and intranet .</p>

FOCUS AREA	ACTION	OBJECTIVE	2015 PROGRESS
EQUIPMENT EFFICIENCIES	Lighting Upgrades	To develop standards to lighting system upgrades internal and external, with consideration for appropriate lighting levels and usage	<p>Continue to work with the internal lighting working group to review current practices for lighting in each area and determine commonalities and synergies within each area</p> <p>Continuation of Council approved LED retrofit streetlight project – 3 year</p>

			<p>project (year 2)</p> <p>LED Lighting project for the Canada Games Complex Natatorium</p> <p>LED lighting installed in various locations at the Canada Games Complex</p> <p>LED lighting installations for the Armstrong EMS station</p> <p>LED lighting retrofit at Balmoral Police Station</p> <p>Lighting retrofit at Station 3 (North Central Fire Station)</p> <p>Replacement of incandescent lighting with more efficient lighting in various locations</p> <p>LED lighting retrofit at the Water Pollution Control Plant (screen and grit building)</p> <p>LED lighting retrofit of main entrance lighting at Current River Community Centre</p> <p>LED lighting retrofit project at Bare Point</p> <p>Continue to implement Parks Trail Lighting Master Plan including implementing LED lighting along the</p>
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			<p>trail system</p> <p>LED lighting retrofits at James St Outdoor Rink and West Thunder Outdoor Rinks</p>
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FOCUS AREA	ACTION	OBJECTIVE	2015 Progress
ORGANIZATIONAL INTEGRATION	Performance & Training	To develop strategy to incorporate energy management into the accountability of employee manuals, job descriptions and performance reviews as required	
	Resource Management	To develop policy to build in energy management into the requirements of all external service providers	<p>Progress to be reported in 2016</p> <p>Commercial Properties working with tenants to ensure energy requirements meeting their operational needs while minimizing energy waste</p>

Projects

FOCUS AREA	ACTION	OBJECTIVE	2015 PROGRESS
ENERGY SUPPLY MANAGEMENT	Demand Side Optimization	To investigate opportunities to match demand size load shifting to optimize cost	OPA Demand Response program suspended in 2014. New program and options for participation re-evaluated in 2015 with participation unlikely due to current requirements for participation.
	Risk Management	Establish metric to evaluate the success of the purchasing policy	Progress to be reported in 2016

FOCUS AREA	ACTION	OBJECTIVE	2015 PROGRESS
ENERGY USE IN FACILITIES	Investment Grade – Comprehensive Audits	To develop criteria to determine future years facilities scheduled for audits	Energy audit completed for the Community Services Administration Building (formally Pool 6) and Front Street Public Works Yard
	Commissioning and Re-Commissioning	To develop comprehensive testing to verify that systems and equipment perform to specifications	Progress to be reported in 2016 Reviewed and adjusted boiler operations at Solid Waste and

			Recycling Facility
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FOCUS AREA	ACTION	OBJECTIVE	2015 PROGRESS
EQUIPMENT EFFICIENCIES	System Upgrades	To develop implementation plans for system/process improvements	Installation of automated digital ice controller at Delaney Arena
	Standards	Develop policy for energy efficient guidelines and equipment specifications for major renovations and new construction projects	Energy efficient design standards utilized in the retrofit at Current River and West Arthur Community Centres (interior renovations)
	Equipment and Building Operational Improvements	To undertake equipment and building operations retrofits and improvements so energy efficiency is actioned – i.e.: variable speed drives, occupancy sensors, programmable thermostats etc.	<p>Review of operational requirements and relocation of resources into centralized location for winter season at Chippewa</p> <p>Installation of new electronic controls valves for perimeter heating at City Hall</p> <p>Installation of new window/doors at Animal Services</p>

			<p>Maintenance of building envelope within Corporate facilities including window caulking, weather stripping etc</p> <p>Maintenance and rebalancing of HVAC system at Mountdale Public Works Administration Building</p> <p>Installation of high speed bay doors at Transit</p> <p>Retrofit of more efficient furnace motors at Algoma Day Care</p> <p>Replacement of multiple Uninterrupted Power Supply (UPS) units with one more energy efficient unit at Bare Point Water Treatment Plant</p> <p>Installation of more efficient hot water tank at Station 8 (Mapleward Fire Station)</p> <p>Continuation of optimization of Turbo Blower project at Water Pollution Control Plant</p> <p>Installation of two new heating and ventilation system at WPCP including variable speed drives and building automation system to increase energy efficiency of units</p>
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	New and Emerging Technology	To undertake pilot projects to determine benefits/ weakness of new and emerging energy technology as applicable for Corporate use	<p>Conducted a review of options for Compressed Natural Gas (CNG) fuel options available for Buses, Waste Packers and Ice Resurfacers.</p> <p>Conducted a review of options for feasibility of Electric powered buses and Ice resurfacers.</p> <p>A more detailed summary of the findings and recommendations will be provided in 2016.</p> <p>Completed pilot project that tests and evaluates the use of propane as a fuel option compared to gasoline.</p>
	Capital Asset Renewal Program	To develop strategy and sustainable funding model to ensure energy efficiency is incorporated within the asset renewal program	Progress to be reported in 2016
	Green Fleet Implementation Plan	To implement strategies outlines within Green Fleet Implementation Plan	<p>Continued use of B20 blend biodiesel fuels fleet wide</p> <p>Replacement of 40 aged fleet assets reducing harmful GHG emissions by 90% with newer engine technologies.</p>

			<p>Replacement of heavy truck and bus tires with retread tires which reduces overall production energy per tire by 70%.</p> <p>Upgrades to diesel fuel filtration system at fuel dispensing pumps in four City yards that provides higher level of dirt and particulates removal from fuels increasing engine efficiency and lifecycle.</p>
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FOCUS AREA	ACTION	OBJECTIVE	2015 PROGRESS
ORGANIZATIONAL INTEGRATION	Energy Management Training	To incorporate energy management training into employee orientation and future training opportunities offered through Human Resources	Continued fleet training enhanced training programs to include additional and more frequent training opportunities that improve operator driving habits