



earth  care

Thunder Bay

sustainable by nature

Annual Report 2014

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Introduction

The past year was a significant one for EarthCare, as it saw the adoption of the EarthCare Sustainability Plan 2014-2020, which replaced the Community Environmental Action Plan (CEAP), 2008. 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 based 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. Those keenly following along may also notice the inclusion of a new section specifically on climate adaptation, and the absence of the dedicated section on pesticide use. While no less of a concern, provincial and public understanding of pesticide impacts has evolved. The threat that chemicals play in our lives is addressed through the Air, Food, and Water Working Groups within the plan.



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



- **Vision:** Building a community vision for sustainability.
- **Mission:** To secure the environmental health of our region, and thereby improve the social and economic wellbeing of future generations.

Our community has come a long way since the adoption of the CEAP in 2008 and the Sustainability Plan reflects that sophistication. The overarching goal of the plan is still reducing greenhouse gas (GHG) emissions and creating a more sustainable and resilient Thunder Bay.

While the City of Thunder Bay is the keeper of the plan, the plan is multi-sectoral in that many of its actions are aimed at 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.

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, 2014 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. At the same time they were honing their draft sections, updating their goals and objectives to reflect the successes of five years of implementation, the remaining gaps, new knowledge, and new issues on the horizon. The Working Groups fall under the following thematic areas: Sustainable Development, Community Lifestyle, and 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 (back row): Lynn Duffield, Councillor Andrew Foulds (Chair), Ashleigh Marchl, Ian Kaufman, Councillor Frank Pullia, Jane Todd (Vice-Chair), **From l-r(front row):** Curniss McGoldrick, Brad Doff, Sarah Kerton, Shannon Costigan, Sandy Stiles. Missing: Shannon Costigan, Kerri Marshall, Linda Douglas. **Art Credit: Janice Andrews, Earth Series #3.**

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.



Sustainable Development | 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.

Energy WG Members

Hugh Briggs, Lakehead University
Vanessa DeGiacomo-Zwaresch, CTB, Energy Analyst
Andrea Gool, Ontario Power Generation
Larry Hogard, Superior Inspections
Brad Doff, CTB, Sustainability Coordinator
Michelle Lebate, CTB Energy Analyst (Acting)
Kerstin Muth, Environment North, Chair
Raph Shay, Eco Superior
Jane Todd, OPG
Bill Willis, Thunder Bay Hydro

Progress Highlights:

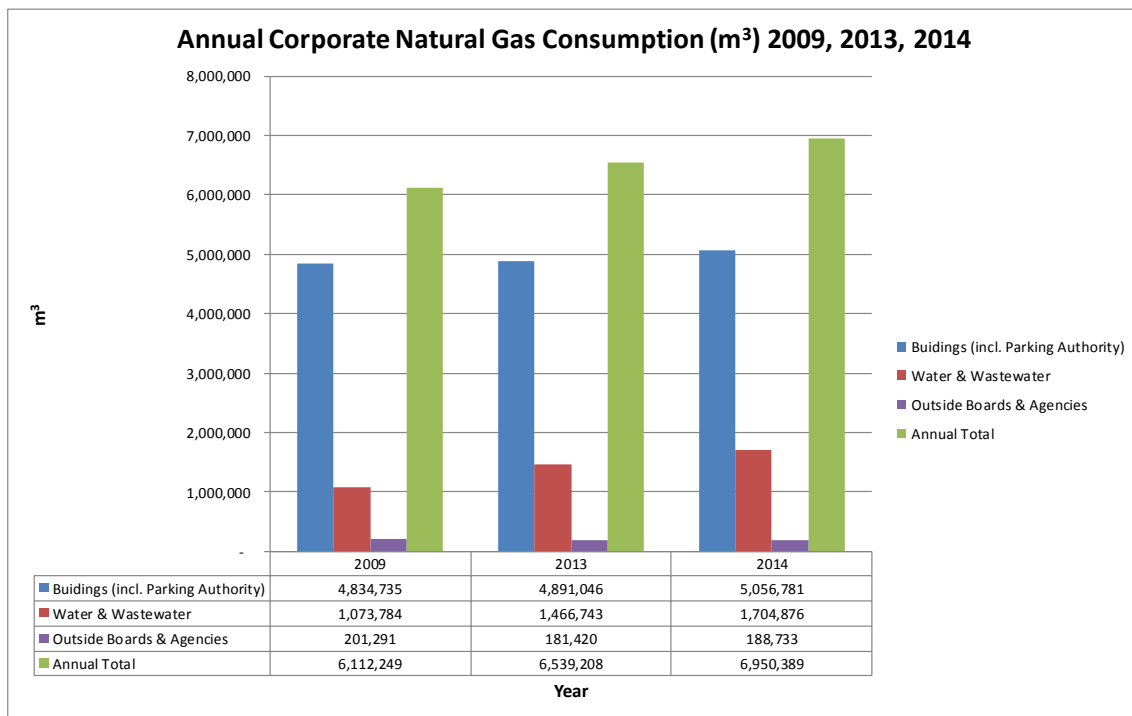
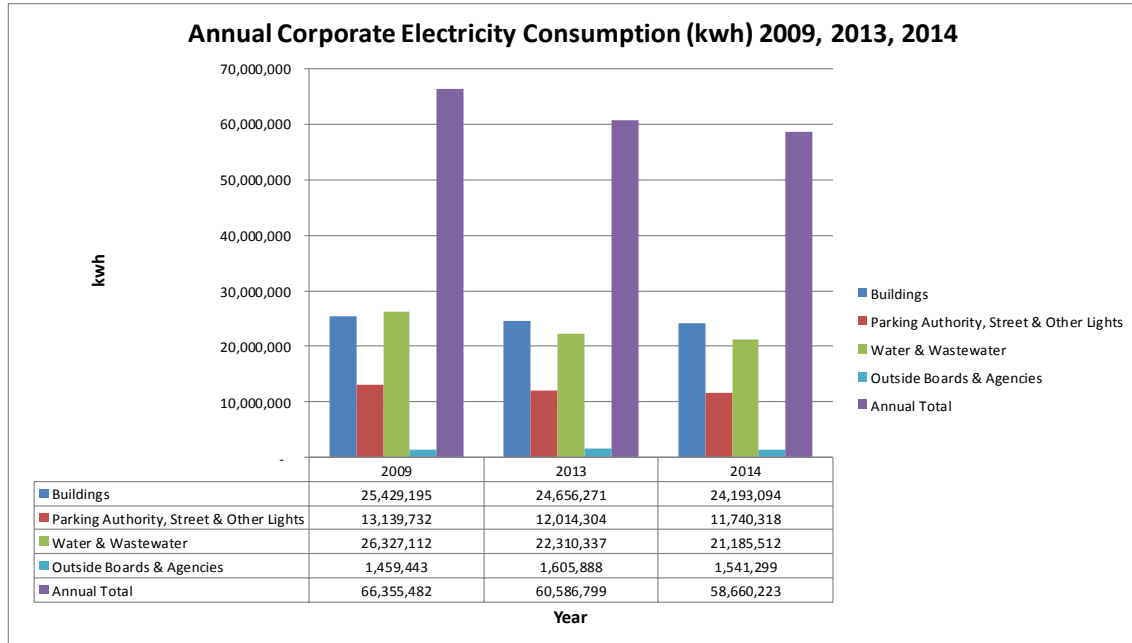
- In 2014, overall GHG emissions for the Corporation increased by 0.7% from the 2009 baseline levels. Electricity related emissions declined by 19% and gasoline by 2%, while natural gas related emissions increased by 14.7%, and diesel emissions held steady. These 2014 figures were provided by the Central Support Division of Community Services, which tracks energy use and GHG emissions across the Corporation on an annual basis, and reports on them as part of the EarthCare Annual Report (see appendix for details). Overall GHG emissions appear to have held steady related to the new 2009 baseline, however, one must consider that during that same period of time the City has increased its facilities portfolio as well as worked to better use its buildings to their full capacity.¹ This past year was also another unseasonably cold winter which drove up the use of natural gas.
- Continuous progress and implementation on 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 Rd. Solid Waste and Recycling Facility and rooftop solar PV

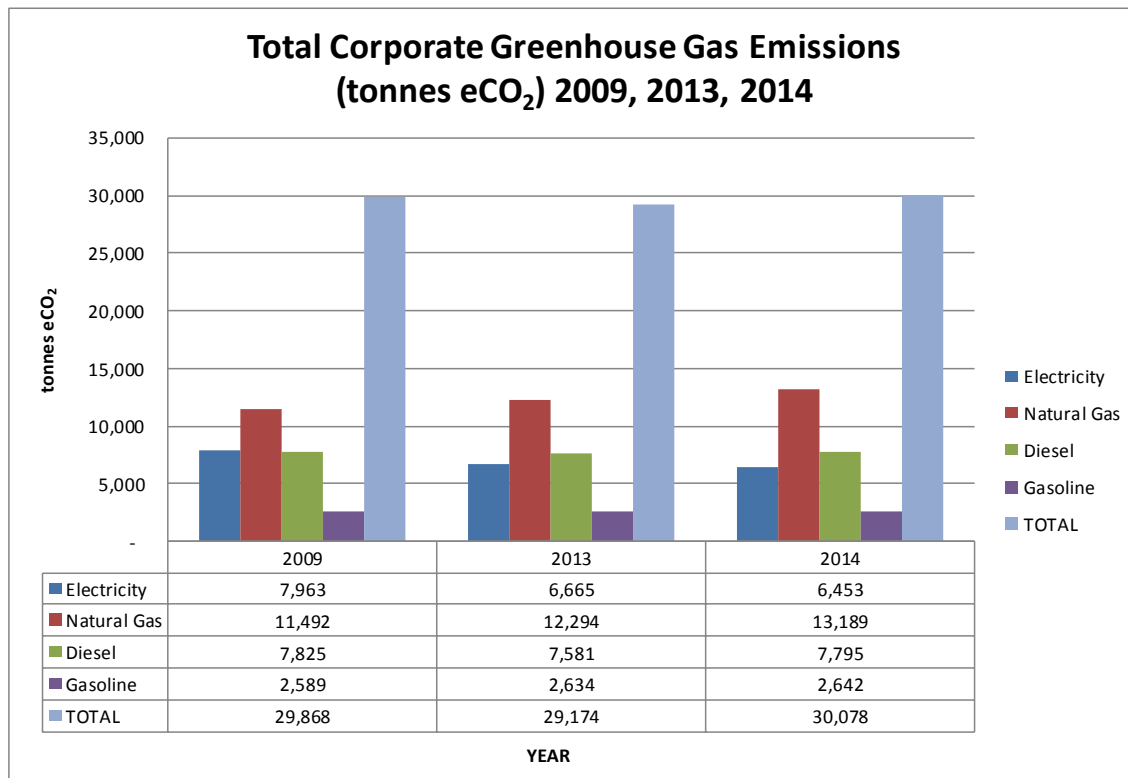
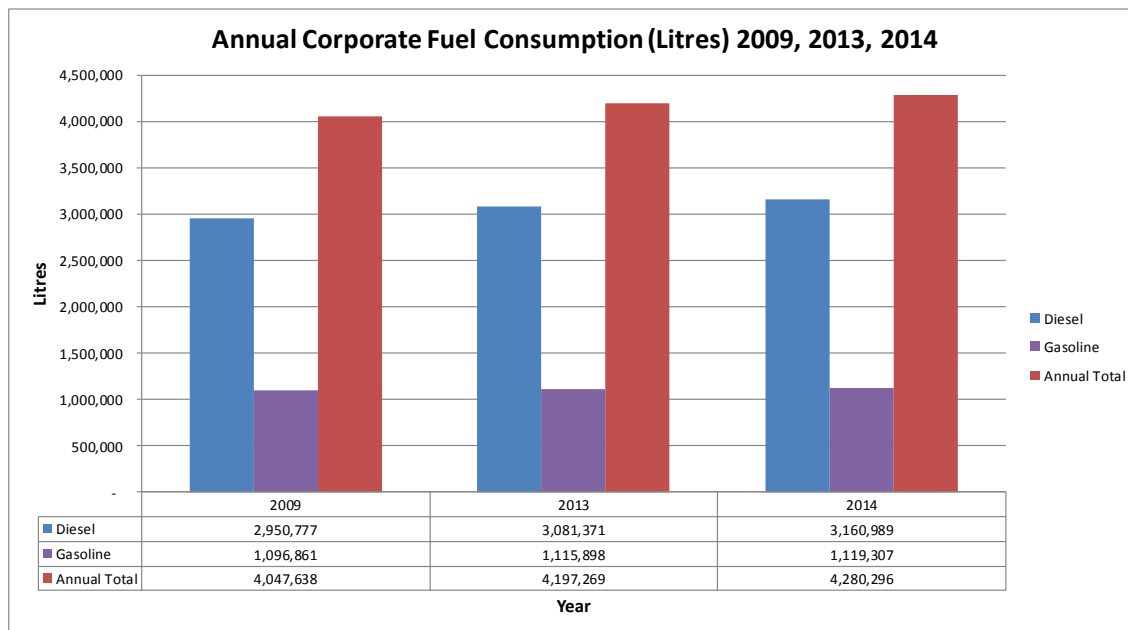
¹ Since 2009 the City has expanded the facility portfolio to include the new Chippewa RV Park (2010), Mapleward Rd. Solid Waste & Recycling Facility (2011), the Junot EMS HQ building (2012), two new buildings in Armstrong for EMS services (2012), the new Mountainview Cemetery facility (2012), and Waterfront buildings (2011/2012) which all operated at full capacity in 2013. In 2014 the James St. EMS addition to the Fire Hall was also added. Additional responsibility for highway maintenance within city limits, new subdivision construction, increased supervision during maintenance to reduce liabilities, and additional bike lanes and park trails also contributed to higher fleet usage.

installations on City buildings, which generated approximately 15,500,000 kWh's of renewable electricity in 2014.

- Contributed to the new Sustainability Plan.
- EarthCare Energy Working Group gave away five free home energy evaluations.
- Continued to monitor GHG emissions.

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





Sustainable Development | GREEN BUILDING



Goal: Thunder Bay buildings minimize energy consumption and conserve resources.

Green Building WG Members

Brad Doff, CTB Sustainability Coordinator
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

Progress Highlights:

- Multiple lighting efficiency upgrades were performed at the Canada Games Complex, Fire Station 3 and Balmoral Police Station.
- LED lighting was installed at Bare Point Water Treatment Plant and at the Community Auditorium for stage events.
- Programmable thermostats were installed at the Fire Stations and existing thermostats were reprogrammed with reduced day and night settings.
- Two new on-demand hot water heaters and a timer and solenoid system to control run-time on hot water were installed at Delaney Arena.
- Recreation and Culture continue to replace equipment with Energy Star appliances - West Arthur Community Centre (Ice machine and cooler), Current River Community Centre (freezers, fridge, bar cooler) and Oliver Road Community Centre (dishwasher).
- There were various other energy efficiency upgrades across the Corporation which can be viewed in the appendix.

"Affordability goes beyond first cost; considerations for greater durability, lower operating costs & superior performance must be included when it comes to calculating affordability."

- Ron Jones, One of the fathers of the green building movement

Community Lifestyle | 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.

Climate Adaptation Team Members

Julee Boan, Boreal Program Manager, Ontario Nature
Charles Campbell, Central Support Manager, City of Thunder Bay
Adam Cornwell, Assistant Professor of Geography, LU
Kayla Dixon, Project Engineer, City of Thunder Bay
Brad Doff, Sustainability Coordinator, City of Thunder Bay
Wayne Fletcher, Spokesperson (Retired Lakehead School Board Principal)
Curniss McGoldrick, EarthCare, City of Thunder Bay
Roopa Rakshit, Board Member, Environment North
Don Stokes, Deputy Chief, Community Emergency Services
Chris Walton, President, Arbora Management Services Inc.

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 goal of the strategy is to help the City prepare for, respond to, and recover from the potential impacts of climate change.
- In March 2014, the City completed the first milestone of ICLEI Canada's internationally-recognized Building Adaptive & Resilient Communities (BARC) Program.
- A Climate Adaptation section was created for the 2014-2016 EarthCare Sustainability Plan.
- The City's Executive Management Team renewed their commitment to developing a Corporate Climate Adaptation Strategy in August 2014.
- A research project on the impacts of climate change in Thunder Bay was undertaken and completed in collaboration with Lakehead University in the summer of 2014.
- EarthCare partnered with Thunder Bay Hydro's *72 Hour Preparedness Campaign* which was launched in November, 2014.
- Nine priority climate change impacts were identified for the City of Thunder Bay through extensive consultation:
 - 12 workshops were held to consult over 100 people
 - 34 key stakeholders participated in an 'importance' survey
 - 21 vulnerability interviews were held with service sector professionals
 - 32 key stakeholders participated in a risk analysis
- Work on the second milestone of the BARC Program wrapped-up in December 2014.
- Consultants were hired in December 2014 to work with EarthCare and the City to undertake and complete milestone three.

Community Lifestyle | **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.

Food Action Network Members

Erin Beagle, Roots to Harvest
Rudy Buitenhuis, OMAF
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
Andrena Toth, Canadian Red Cross

Progress Highlights:

- The Food Strategy development process was ongoing. Over 30 working group meetings were held, involving over 70 people, to draft the strategy.
- An Open House in April 2014 brought out 140 people to provide input into the draft strategy document.
- The Thunder Bay & Area Food Strategy was unanimously endorsed by seven municipalities and townships in summer 2014.
- 1,400 "Vote for Food and Farming" postcards were distributed in advance of the 2014 Municipal Election to encourage voters to visit the Food Strategy website for candidates' answers to the following questions: "If elected, what will you do to support local food and farming enterprises?"; "If elected, what will you do to protect farmland, the environment, and forest and freshwater food systems?"; and "If elected, what will you do to support access to healthy food for all?"

"Innovations that are guided by smallholder farmers, adapted to local circumstances, and sustainable for the economy and environment will be necessary to ensure food security in the future."

-Bill Gates

- The City secured a second round of funding from the Broader Public Sector Investment Fund to conduct research into the needs of municipal institutions and the capacity of local producers with the goal of increasing the purchase of local food by the broader public sector. Three City-owned long-term care facilities and four day cares participated in the research to develop a food service model that prioritizes local food and, in 2014, targets a 10% increase in Northwest Ontario/Ontario food purchases for the seven institutions. The city, as a lead partner in this project, engaged a broad range of stakeholders, including local farmers, food distributors, and public health and sustainability advocates, in developing a municipal purchasing model that puts high value on locally sourced food.
- Two new community gardens were started in 2014. 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.



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
# of events that promote local foods	13	16	16	15	14	16	21
# of participants at "Eat Local" Workshops	350	400	425	400	400	375	150
# of participants at "Seedy Sunday" Event	-	-	-	107	200	150	100
% annual change in food bank + soup kitchen usage (OAFB Data)	+28.5	+46	+32	+32	n/avail	+3	n/avail
Cost of a Nutritious Food Basket for a Family of Four in our area in \$ / month (TBDHU data)	\$628	\$705	\$790	\$795	\$827	\$794	\$874
# of community gardens	5	6	6	7	10	14	16
# of school gardens	2	2	3	4	8	16	16

Community Lifestyle | **MOBILITY**



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

Progress Highlights:

- Thunder Bay's first Open Streets events, held on July 13 and September 14, 2014 were run in partnership with EcoSuperior, and attracted over 4,300 participants of all ages to explore a five km stretch of Algoma St. free of automobile traffic. Twenty-five community groups participated and over 100 citizens volunteered their time to help run the event.

Safe Cycling Thunder Bay:

- Held 32 cycling courses, including; four grade-4 bike rodeos, four Day Camp programs, and 10 'Discover Thunder Bay' rides
- 278 citizens received cycling education
- Launched the National Toolkit: 'Creating Cycling Education Programs'

Commuter Challenge Thunder Bay:

- The Commuter Challenge ran from June 1-7, 2014, with 798 people registering in 54 workplaces. In the end 606 people actively participated, travelling 43,688 kms, burning 488,017 calories, and thereby avoiding the creation of 6,253 kg of GHGs

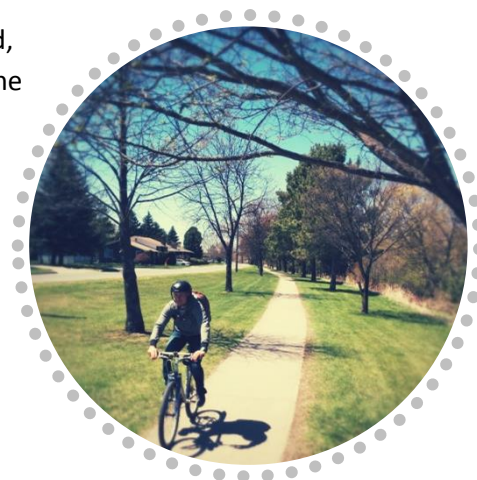
Public Education and amenities:

- Thunder bay launched 5 new 'Sharing the Road' videos; and distributed 12,000

As of 2014, 49 km of paved multi-use trails have been created throughout the community.

Mobility WG 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



‘Making Right Turns with Bike Lanes’ pamphlets

- Launched the ‘UCycle’ Pilot Program; a partnership with Share the Road Ontario and Lakehead University Student Union.
- Introduced Thunder Bay’s first public bike repair stands and bike pumps.
- Launched Thunder Bay’s first multi-modal transit hub.

New Active Transportation Routes:

- 4.1 kms of new on-street bike lanes
- 3.7 kms of preferred cycling routes

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
# of traffic injuries to pedestrians (CTB Traffic Collision Analysis Program)	62	73	28	46	43	52	33	26
# of uses of bike racks on buses	-	-	7,290	13,746	21,060	18,516	18,974	18613
# of transit rider trips per capita	28.6	31.2	33	31.7	33.01	33.61	33.39	34.66
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
kms of bike-lanes and sharrows	0	0	0	10	20	29.8	31.7	33.6
kms of paved multi-use trails	33.4	35.4	36	36	41	46	47	49
# of presentations on Active Transportation	-	2	14	30	43	77	70	41
# of people reached through presentations	-	175	560	2,954	2,098	2,070	2234	6408
# of community organizations engaged	-	8	18	22	25	26	26	26
Dedicated AT Funding (in thousands)	-	-	28.5	130	130	135	135	180

Community Lifestyle | WASTE



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

Waste WG Members

Brad Adams, CTB, Manager, Roads Division
Shannon Costigan, EcoSuperior, Chair
Glenn Berst, St. Joseph's Care Group
Rod Bessel, Lakehead Public Schools
Cathy Bevilacqua, CTB, Supply Management Div.
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 Mgt. Div.
Jason Sherband, CTB, Waste & Recycling Coordinator

Progress Highlights:

- The City's Solid Waste Management Strategy was approved in principle by City Council. It is a blueprint that provides strategic direction for managing residential, multi-residential, and Industrial, Commercial and Institutional (ICI) sector waste management activities over the short, medium and long-term planning periods.
- The City of Thunder Bay's first curbside battery recycling program was piloted, consisting of a one-day collection on the regularly scheduled recycling day in both the spring and fall. This was the first such program offered in Northern Ontario and resulted in 6.4 metric tonnes of additional batteries being recycled.
- Thunder Bay's first ever 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 neighborhoods to see what great treasures they could find.

"The future belongs to those who understand that doing more with less is compassionate, prosperous, and enduring, and thus more intelligent, even competitive."

-Paul Hawken

City employees participate in Spring up to Clean Up.



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

Indicator:	2007	2008	2009	2010	2011	2012	2013	2014
Amount diverted through the HHW Depot in Metric Tonnes	178	157	165	276	362	235 ²	266	247
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 ³	1166
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
Total residential waste generated in Metric Tonnes	48,100	50,500	50,100	52,800	55,400	62,200	52,319	51,592
Total residential waste diverted in Metric Tonnes	12,800	13,900	15,300	16,500	18,000	18,600	10,145	11,122
% of residential solid waste diverted from landfill	27%	28%	30%	31%	32.5%	30% ⁵	20%	22%

² 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.

³ 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 SWMS consultation process in 2013).

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.

Natural Environment | GREENING



Goal: To protect, maintain and improve the biodiversity, ecosystems and the well-being of the green infrastructure of Thunder Bay.

Community Greening WG Members

Lee Amelia, CTB, Urban For. Pgm. Specialist, Chair
 Brad Doff, CTB, acting 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 Urban Forest Prog Spec. Chair

Progress Highlights:

- Eight benches and six trees were installed through the commemorative Tree and Bench Program.
- The Citizen Pruner Program pruned 152 trees and trained 19 new volunteers.
- The Parks Division adopted the water bags as a new standard, offering two years of watering for young trees.
- The County Park LID day-lighting project was completed with 25 trees.
- Arthur and Waterloo opportunity site was identified and planted with 24 trees.
- Court St. Parkette was transformed into an edible forest through a partnership with Roots to Harvest.
- A major arterial tree planting took place along Golf Links Rd, May, and Algoma Streets.
- The Friends of Chippewa planted 35 trees.
- Arbor Day provided Thunder Bay with a new multi-year planting plan for Parkdale Park - 20 new trees were planted alongside 74+ citizens including mayor and council.
- Development of an EAB Management Plan for Thunder Bay, to be brought to Council in 2015.
- Prism trapping in city limits and in some nearby municipalities.
- EAB campaign was launched which included a ribbon campaign and an EAB awareness day.

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

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.

Natural Environment | **WATER**



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

Water WG Members

Jim Bailey, Remedial Action Plan Coordinator
Tammy Cook, 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

Progress Highlights:

- Held the first annual Canada Water Week celebration at the Baggage Building, alongside a proclamation to state that Thunder Bay recognizes Canada Water Week as the third week in March.
- Confederation College completed a stormwater management plan and stream assessment of the McIntyre River.
- A Sediment Management Options Report for the Thunder Bay North Harbour Project was completed, reporting on how to deal with mercury contaminated sediment in the Harbour.
- Consultants were selected for the City's Stormwater Management Master Plan.
- Oil/Grit Separator program was completed for City owned and privately owned OGS.
- McVicar Creek Restoration Plan was completed. Two projects were completed as part of this report; the Madeline Street LID site at Grandview Arena and County Park stream daylighting.
- EarthCare received funding to install a LID on Memorial Avenue from 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.
- Stream Rehabilitation Public Open house was held for the development of a stream rehabilitation plan for waterways along Lake Superior's North Shore and to eventually rehabilitate impacted stream and showcase rehabilitation projects.

- LID Education and Awareness Program was completed as an education and outreach campaign to link climate change with stormwater variability and to identify barriers to the adoption of broader LID techniques and to promote the ones already in place. A factsheet and a tour of LID facilities in Thunder Bay were completed.
- The Quench App was launched in Thunder Bay at the Great Lakes & St. Lawrence Cities Initiative Conference. The App shows users where to get municipal drinking water and water bottle re-fill stations throughout the City. Thunder Bay is the first City outside Toronto to launch this App.
- EarthCare had a table at Lake Superior Day celebrations.
- Award and commencement of the Stormwater Master Plan (EOR was successful bidder).
- Completion of Delaney Arena parking lot re-construction including LID implementation.

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
Liters of treated water per capita per day (residential & ICI sectors)	442	407	400	391	369	369	347	352



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 2015 EarthCare will be focusing on applying for the Partners for Climate Protection Milestone Four and Five, finalizing a new implementation plan for the Sustainability Plan, undertaking a new low impact development project on Memorial Ave., investigating municipal energy planning, and finishing Milestone Three of the Climate Adaptation Plan, 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. Together, over the next six years, it will 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, 2014 Report

The City of Thunder Bay presently has a Conservation and Demand Management Plan called The Strategic Approach to Corporate Energy management Plan (CEMP). This 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.

In 2014, the Corporate Energy Management Committee worked collaboratively within all Departments to implement the various strategic initiatives outlined in the plan and the following table highlights the year's progress.

PROCESS IMPROVEMENTS: ENERGY DATA MANAGEMENT		
ACTION	OBJECTIVE	2014 Progress
Accessibility & Reporting	Provide access to Corporate Energy Management Tool (EMT) for energy data to all identified staff	Working with Corporate Information Technology department to allow identified key staff access to energy data Access will be read only through an energy link to the specific departments/divisions
Key Performance Indicators (KPI's)	Provide meaningful benchmarking indicators for all facilities	Working to implement key performance indicators (KPI's) into reporting process to align with Green Energy Act and/or EarthCare <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)

PROCESS IMPROVEMENTS: ENERGY SUPPLY MANAGEMENT		
ACTION	OBJECTIVE	2014 Progress
Account Management	To establish a corporate Energy Innovation Reserve Fund with incentive funding to fund future energy initiatives	Developing framework and application process for use in 2015 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

PROCESS IMPROVEMENT: ENERGY USE IN FACILITIES		
ACTION	OBJECTIVE	2014 Progress
Facility Standards	To develop operational standards for building controls within facilities using Industry standards	Progress to be reported in 2015

PROCESS IMPROVEMENTS: EQUIPMENT EFFICIENCIES		
ACTION	OBJECTIVE	2014 Progress
System Controls	To develop a process to control equipment and systems when operating levels or loads are reduced as to reduce energy use	<p>Ongoing preventative maintenance programs in Fire Stations</p> <p>Installation of programmable thermostats at Fire Stations and reprogramming with reduced day and night settings</p> <p>Ongoing preventative maintenance in all City facilities</p> <p>Installation of new garage loops in overhead garage doors at Front St. Administration Building and Mountdale Garage Building</p> <p>Installation of 2 new on demand hot water heaters at Delaney Arena</p> <p>Installation of a timer and solenoid system to control run time on hot water at Delaney Arena</p>

		Changed sauna controls to electric with remote control at CGC
Energy Efficient Procurement	To develop policy for standards for the purchase of energy efficient equipment i.e.: Energy Star	<p>Developing a procedure to recommend the purchase of Energy Star rated energy consuming products or most energy efficient product if Energy Star not available</p> <p>Recreation and Culture continue to replace equipment with Energy Star appliances - West Arthur Community Centre (Ice machine and cooler), Current River Community Centre (freezers, fridge, bar cooler) and Oliver Road Community Centre (dishwasher)</p>

PROCESS IMPROVEMENTS: ORGANIZATIONAL INTEGRATION		
ACTION	OBJECTIVE	2014 Progress
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>
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: ENERGY DATA MANAGEMENT		
ACTION	OBJECTIVE	2014 Progress
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	Reviewing the use of the Powerview application from Thunder Bay Hydro for viewing interval data at the WPCP and Bare Point Water Treatment Plant

PROGRAM IMPLEMENTATION: ENERGY SUPPLY MANAGEMENT		
ACTION	OBJECTIVE	2014 Progress
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>

PROGRAM IMPLEMENTATION: ENERGY USE IN FACILITIES		
ACTION	OBJECTIVE	2014 Progress
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 2015
Customer Awareness	To develop programs to increase energy conservation awareness for customers ie: users of City facilities	<p>The Corporation submitted its 2012 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>

PROGRAM IMPLEMENTATION: EQUIPMENT EFFICIENCIES		
ACTION	OBJECTIVE	2014 Progress
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>Began Council approved LED retrofit streetlight project – 3 year project</p> <p>Lighting upgrades at Fire Station 3 from T12 to T5</p> <p>LED lighting retrofit at Bare Point Water Treatment Plant</p> <p>Lighting upgrades at Balmoral Police Station – LED, T8 reduced wattage</p> <p>Lighting upgrades at Canada Games Complex T8 – LED</p> <p>Park and various trail light upgrades to LED</p> <p>LED lighting installed at Community Auditorium for stage events</p> <p>Development of the Parks Trail Lighting Master Plan implementing LED lights along the trail system</p> <p>LED lighting replacement at James St Outdoor arena</p> <p>Last winter in conjunction with the Victoriaville BIA, 42 Christmas decorations for the area around city hall were retrofitted and converted to LED lights.</p>

PROGRAM IMPLEMENTATION: ORGANIZATIONAL INTEGRATION		
ACTION	OBJECTIVE	2014 Progress
Performance & Training	To develop strategy to incorporate energy management into the accountability of employee manuals, job descriptions and performance reviews as required	Fire Personal & Community Services Staff promoting energy conservation amongst employees

Resource Management	To develop policy to build in energy management into the requirements of all external service providers	Progress to be reported in 2015 Parking Authority working with Parkade users to ensure lighting levels meet needs without waste
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PROJECTS: ENERGY SUPPLY MANAGEMENT		
ACTION	OBJECTIVE	2014 Progress
Demand Side Optimization	To investigate opportunities to match demand size load shifting to optimize cost	OPA Demand Response program suspended in 2014. New program to be offered in 2015. Participation in program for the Corporation will be evaluated in 2015.
Risk Management	Establish metric to evaluate the success of the purchasing policy	Progress to be reported in 2015

PROJECTS: ENERGY USE IN FACILITIES		
ACTION	OBJECTIVE	2014 Progress
Investment Grade – Comprehensive Audits	To develop criteria to determine future years facilities scheduled for audits	Energy audit completed for the Pioneer Ridge Homes for the Aged
Commissioning and Re-Commissioning	To develop comprehensive testing to verify that systems and equipment perform to specifications	Progress to be reported in 2015

PROJECTS: EQUIPMENT EFFICIENCIES		
ACTION	OBJECTIVE	2014 Progress
System Upgrades	To develop implementation plans for system/process improvements	Pump automation at Harbourview Expressway Stormwater Pumping station
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 Transit, and the construction of the Frederica Fire Station and Mapleward Fire Station. Superior North EMS Headquarters on Junot Avenue achieved the LEED®-NC Gold certification

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>HVAC upgraded in Fire Station #2</p> <p>Extensive HVAC system upgrades at Churchill Pool – 3 boilers, dehumidification system, ERV, hot water tanks</p> <p>Installation of new air handling units at the Whalen Building</p> <p>Installation of new HVAC at Current River Community Centre</p> <p>New cooling tower and associated pumps installed at Balmoral Police Station</p> <p>Weather strips added in various facilities in the Corporation</p> <p>New boiler system installed at Waverly Library</p> <p>New windows, doors and lighting installed at Strathcona Golf Course Main Hall</p> <p>Replaced two Main Sewage Pumps and associated variable frequency drives and motors with more efficient units at the Atlantic Avenue Water Pollution Control Plant.</p> <p>Replaced eighteen (18) conventional blowers with five (5) high efficiency turbo blowers for process aeration at the Atlantic Avenue Water Pollution Control Plant.</p> <p>Roof replacement with increased insulation at Community Auditorium</p> <p>Installation of two new hot water tanks at Neebing Arena</p> <p>Occupancy sensors installed at Landfill Site</p> <p>Hot water pipes wrapped at Landfill Site</p> <p>Replaced and upgraded insulation in office and garage area of Terrace Bay</p>
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		EMS. Thermostats installed on garage heaters.
New and Emerging Technology	To undertake pilot projects to determine benefits/ weakness of new and emerging energy technology as applicable for Corporate use	Progress to be reported in 2015
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 2015
Green Fleet Implementation Plan	To implement strategies outlines within Green Fleet Implementation Plan	<p>Increase use of B15 blend biodiesel fuels fleet wide</p> <p>Installation of electric fan cooling systems in lieu of belt powered mechanical fan systems to improve bus fuel efficiency by up to 6.5% (installation on 10 buses)</p> <p>Installation of real time GPS vehicle performance monitoring in higher usage vehicles</p> <p>Replacement of aged vehicles reducing harmful GHG emissions by 90% with newer vehicles.</p> <p>Replacement of 75% of heavy truck and bus tires with retread tires which reduces overall production energy per tire by 70%</p> <p>Began pilot project to evaluate the use of propane as a fuel source vs gasoline. Project will continue into 2015 and review opportunities to add any additional propane fueled trucks where demonstrated positive improvements.</p> <p>Upgrades to diesel fuel filtration system at fuel dispensing pumps in 3 City yards to remove over 90% dirt and particulates increasing engine longevity and efficiency.</p>

PROJECTS: ORGANIZATIONAL INTEGRATION		
ACTION	OBJECTIVE	2014 Progress
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