



Town of Oakville

State of the Environment Report 2015



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1 Introduction



Welcome!



The Halton Children's Water Festival celebrated its 10 year anniversary in 2015. The town has been a supporting partner since its inception in 2006.

This is the eighth annual edition of the SOER. As you look through the information presented in this report, we encourage you to reflect on the impact “environment” has in our lives - it provides us the air we breathe, the food we eat, the water we drink and so much more. In turn, we also have a significant impact - we have the opportunity to make choices that can make this impact positive. The town is pleased to note that this year we were selected as one of Canada's Greenest Employers, recognizing the town's commitment to environmental sustainability. We hope you will join us in finding ways to improve Oakville's environment and help make it the most livable town in Canada.

Background

In December 2005, Council approved the town's first **Environmental Strategic Plan** (ESP). This document was developed in partnership with the community and updated in 2011. One of the recommendations of the ESP was to develop a state of the environment reporting system and in 2008, the town published its first annual State of the Environment Report (SOER).

This report, like most State of the Environment Reports, uses indicators. Since the environment is very complex, indicators provide a more practical and economical way to track the state of the environment than if we attempted to record every possible variable in the environment. For example, CO₂ emissions can be an indicator of climate change. While there are many causes of climate change, scientific research has shown a direct link exists between increasing CO₂ emissions and increasing global average temperatures.

As we increase our baseline data, we can start to see trends which will help us determine the best programs and actions needed to improve our performance.

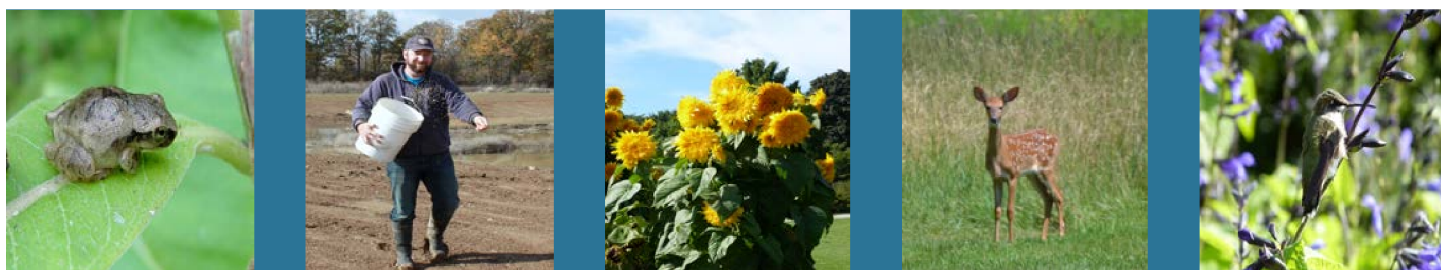
An exciting new addition to the SOER in 2016 will be the return of the town and neighbourhood level ecological footprint. This program collects data from across the town to provide a measure of our impact on the environment and sustainability. This can be used to help us target conservation programs, outreach and even assist in learning more about how we can maximize improvements to our infrastructure. We look forward to hearing your comments and how we can help improve on our reporting to you.



In 2015, the Honourable Elizabeth Dowds, Ontario's Lieutenant Governor visited the LEED certified Queen Elizabeth Park Cultural and Community Centre to learn about the town's efforts towards environmental sustainability.

2 Indicators

GOAL 1: To Sustain and Enhance Our Natural Environment



Objectives

- 1.1 To protect and enhance our biodiversity
- 1.2 To protect and enhance our urban forest
- 1.3 To protect and enhance our waterways
- 1.4 To protect and enhance our air quality
- 1.5 To increase ecological landscaping on private and public property
- 1.6 To reduce and manage the impacts of climate change

Indicators

- Publicly owned green space (total)
- Trees planted by town staff
- Total suspended solids in creeks
- Mean chloride in creeks
- Mean phosphorus in creeks
- Ground level ozone (annual average)
- Fine particulate matter (PM_{2.5}) exceedances
- Annual precipitation
- Annual average temperature (winter/summer)

Key Data

Greenspace and Biodiversity

Protecting and enhancing Oakville's greenspace is important in sustaining our flora and fauna. Publicly owned land provides opportunities for protection and restoration to support biodiversity. As shown in Figure 1, publicly owned greenspace increased by 1.63 ha in 2014, which equates to about 13.11 hectares of greenspace per 1,000 people as shown in Table 1. It is expected that over time, the trend

of per capita space will generally decline as the population continues to increase and land acquisition opportunities are more limited.

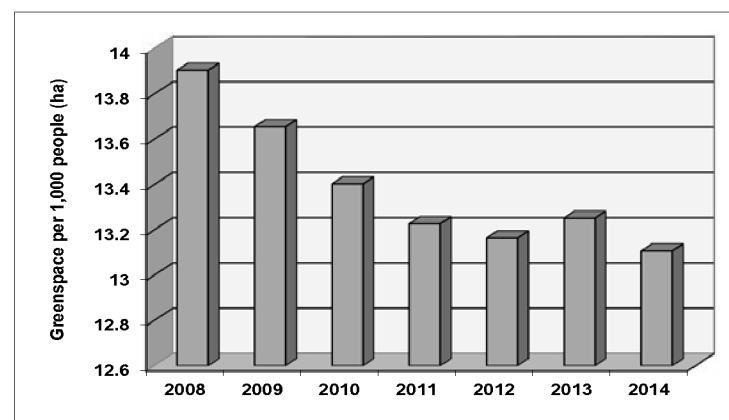


Figure 1: Publicly owned greenspace per 1,000 people

Source: Town of Oakville, Conservation Halton, Province of Ontario

As of 2014, Oakville's land base of 138.5 km² is comprised of 17.7% publicly owned greenspace.

Table 1: Green space in the Town of Oakville

Year	Town (ha)	Province (ha)	Conservation Halton (ha)	Total (ha)
2014	1476	969	10	2455
2013	1,474	969	10	2,453
2012	1,444	969	10	2,423
2011	1,435	969	10	2,414
2010	1,422	969	10	2,401
2009	1,421	969	10	2,400

Note: Municipally owned greenspace includes community and neighbourhood parks, tableland woodlots, valleys, and undeveloped parkland. Provincial holdings include Glenorchy Conservation Area and Bronte Creek Provincial Park. Conservation Halton has Wildflower Woods.



In recognition of the benefits that trees provide, the town has set a goal to achieve a canopy cover of 40% by 2057. We are currently at approximately 29%. In 2015, work began on updating the UFORE canopy cover and this data will be available in the next SOER update.

To maintain a healthy tree population, it is important to continuously plant new trees to ensure the replacement of old and dying ones. This is particularly important in the face of threats such as the Emerald Ash Borer (EAB) and other invasive species. To support existing trees, the town is working to protect 75% of the municipal treatable ash canopy cover. In 2014, 4,517 trees were treated.

To support new trees, as shown in Table 2, town staff planted a total of 1,139 street trees in 2014. This number is lower than in previous years due to the extensive work that was required to recover from the December 2013 ice storm. Volunteers helped fill in this gap and in 2014, the town partnered with community groups to plant over 1,200 trees, shrubs and live stakes.

Table 2: Trees planted by Oakville Forestry Staff	
Year	Trees Planted
2014	1,139
2013	2,441
2012	1,733
2011	994
2010	1,497
2009	3,130
2008	1,898

Total suspended solids (TSS) consist of fine particles of matter found in waterways. These particles are significant carriers of phosphorus, metals, and other

contaminants. Soil erosion and runoff are the most common sources of suspended solids and TSS levels can increase rapidly during storm events.

Although there are no established standards for suspended solids, a 2001 Environment Canada/Health Canada assessment report documents toxicity for sensitive aquatic species at 210 mg/L. TSS can negatively impact aquatic life, including fish, by smothering smaller organisms and eggs, clogging gills and removing oxygen from the water.

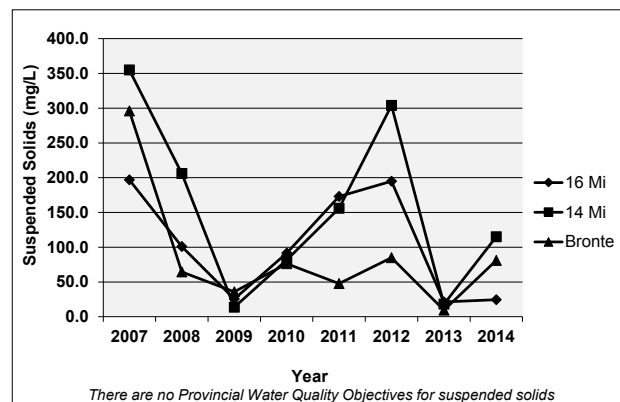


Figure 2: Total suspended solids in Oakville creeks
(average of maximum levels measured during monthly sampling)
Source: Conservation Halton

As shown in Figure 2, TSS increased in both 14 Mile and Bronte Creek in 2014, however, levels are still relatively low compared to other years. While overall precipitation decreased in 2014, extreme rain events are known contributors to runoff and erosion. Additional water quality monitoring during wet weather would reflect rainfall impacts and the town has recently initiated a program to measure chloride, phosphorus and TSS for selected sites.

Air Quality

Both ground level ozone and PM_{2.5} (fine particulate matter measuring less than 2.5 micrometers) have

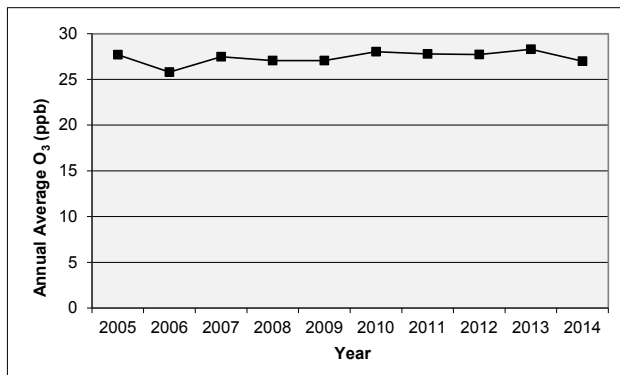


Figure 3: Annual average ground level ozone in Oakville
Source: Ministry of the Environment

been linked to serious health concerns. Ground level ozone is also responsible for the majority of the smog advisories experienced in the town. According to Health Canada, the health reference level for PM_{2.5} is 15ug/m³ and 80 ppb for ozone. These levels have been found to demonstrate quantifiable health impacts in sensitive populations.

Ozone is a secondary air pollutant that is formed when nitrogen oxides (NO_x) react with volatile organic compounds (VOCs) in the presence of sunlight. These pollutants are the product of combustion, including that from motor vehicles. Levels tend to vary considerably in response to varying weather conditions which is why we see the majority of high ozone in summer months. Annual averages have generally been stable as shown in Figure 3, however, if average temperatures increase over time, it is expected ozone will follow if measures, such as a reduction in single occupancy vehicle use, are not taken.

PM_{2.5} is produced when fuels and coal are burned or when other air pollutants react with compounds in the atmosphere. As shown in Figure 4, in 2014 levels were higher than recorded in previous years. This is likely due to new PM_{2.5} analyzers in use across

the province in 2014 that are capable of measuring higher values, particularly in the colder months. Halton Region produces an annual report which can be accessed at www.halton.ca/cms/One.aspx?portalId=8310&pageId=13747

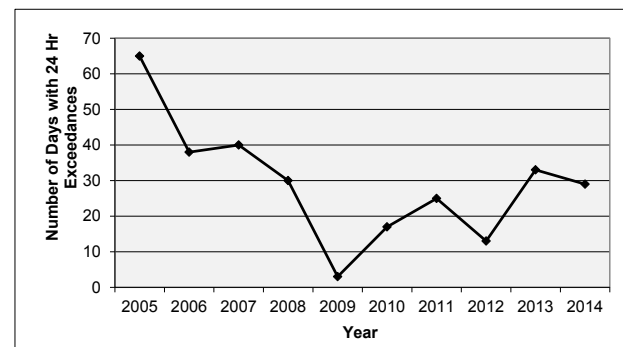


Figure 4: Annual 24 hour exceedance above 15ug/m³ of PM_{2.5}
Source: Ministry of the Environment

Water Quality

Chloride and phosphorus concentrations are important to monitor since these reflect impacts from runoff with road salts and fertilizers. The Provincial

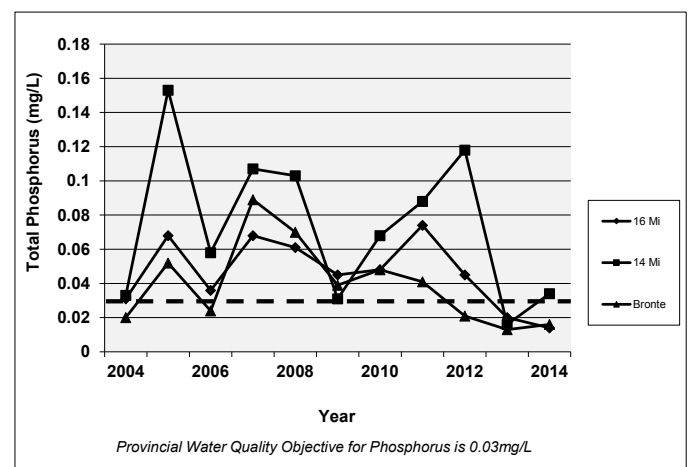


Figure 5: Mean phosphorus levels in Oakville creeks
Source: Conservation Halton

Water Quality Objective (PWQO) for phosphorus to limit excessive plant growth is 0.03 mg/L. For chloride, the PWQO is 250 mg/L. Phosphorus has been a significant water quality issue in Oakville.



Sources include lawn fertilizers, atmospheric deposition, automobile exhaust, soil erosion, animal waste, detergents and wastewater treatment plant discharges.

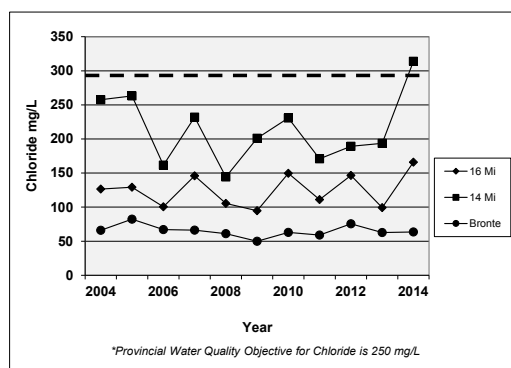


Figure 6: Mean chloride levels in Oakville creeks
Source: Conservation Halton

As shown in Figure 5, in 2014, phosphorus levels in all Bronte and Sixteen Mile creek were below PWQO standards, however, 14 Mile Creek were slightly exceeding. The general trend of decreasing phosphorus levels is likely in part attributable to a reduction in the use of phosphate in soaps and fertilizers. However, it is also important to keep in mind that phosphorus is carried in runoff following precipitation events and sampling may not coincide with peak phosphorus levels.

Elevated chloride levels in Oakville creeks are primarily a result of road salting during winter months. As shown in Figure 6, chloride levels increased in both 14 and 16 Mile Creeks, with 14 Mile's level exceeding the PWQO of 250 mg/L. Although improvements to salt use in winter months have taken place, 2014 was a harsh winter and chloride is known to persist in aquatic systems.

Climate Change

Climate change is expected to lead to greater

variations in our weather patterns and an increase in extreme weather events. By measuring rainfall and

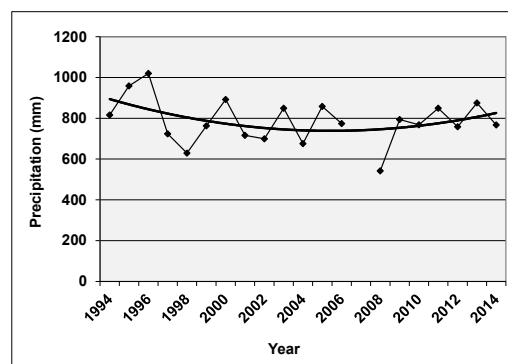


Figure 7: Oakville's annual precipitation
Source: Environment Canada

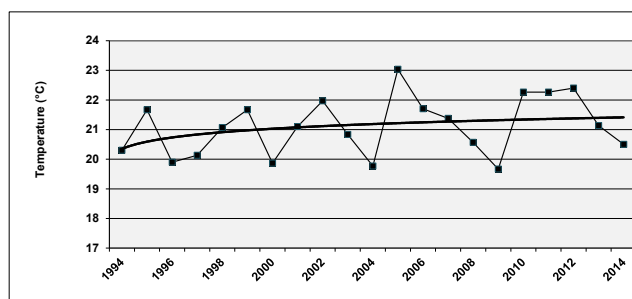


Figure 8: Oakville's average summer temperature
Source: Environment Canada

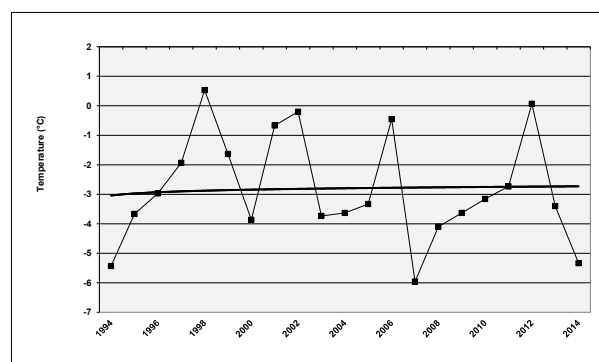


Figure 9: Oakville's average winter temperature
Source: Environment Canada

temperature, we can evaluate some of the changes that are taking place over time. Averaging annual



temperatures may mask the information that would produce more extreme temperatures. By taking the average temperature in the summer months (June, July, August) and the winter months (December, January and February) we can better evaluate variations that occur.

It is important to distinguish between weather and climate. Weather is highly variable and changes from year to year. Climate looks at average weather patterns over decades or centuries to see what trends are occurring so looking at the trendline is more important in this case than looking at the variations from year to year.

Generally, a trend is being seen towards warmer summers and winters, with precipitation showing slight increases as well (Figures 7, 8 and 9). These trends are keeping in line with what is expected based on climate models for southern Ontario. In 2014, the town developed a Climate Change Strategy that provides additional analysis on changing climate trends and how residents can prepare for the resulting impacts.

www.oakville.ca/assets/general%20-%20environment/ClimateChangePrimer.pdf

While we are tracking weather from year to year, it will take some time to see what changes in the local climate are occurring. Years with incomplete weather data have been excluded in the charts.



What We Are Doing

In 2015, a number of stewardship and restoration activities were supported including: a partnership with Tree Canada and Ikea to plant 80 trees at Coronation Park; ongoing restoration of the Bronte Bluffs including the installation of a bioswale, invasive plant removal and the planting of 200 trees in partnership with Rotary Club and Conservation Halton.



In fall 2014, Council endorsed the town's Climate Change Strategy - Technical Report and public outreach document - Oakville's Climate Change Primer. Staff identified over 300 actions to build the town's resiliency to climate change and are starting to track the implementation of these adaptation actions.



As of 2015, the town has received and responded to about 1,000 reports through its coyote reporting system. The town's outreach, education and monitoring program has been successful in helping manage issues around wildlife conflict and has been used as a model for other municipalities.



The Forest Health Monitoring program is a three-year program being conducted for the town by our

forestry consultant, BioForest. One third of Oakville's woodlands are visually assessed annually for signs of pest and disease, with the goal of early detection. Permanent forest health monitoring plots are established in 30



As part of the town's forest health program, forest ambassador volunteers help monitor tree health.

woodlands per year to track changes in forest canopy over time. Canopy photos are taken at each plot, and trial earthworm surveys are conducted at a subsample of these plots to determine level of invasive earthworm activity.

GOAL 2: To Reduce Our Resource Consumption and Waste Production



Objectives

- 2.1 To reduce dependence on fossil fuels
- 2.2 To reduce energy use and greenhouse gas emissions
- 2.3 To reduce waste and increase recycling and reuse
- 2.4 To reduce our water consumption

Indicators

- Electricity use per capita
- Natural gas use per capita
- Natural gas use per sector
- Waste to landfill and diverted
- Residential waste generated per capita
- Water consumption per capita
- Industrial, commercial & institutional water use

Key Data

Energy Conservation

Tracking the amount of energy used by the community can provide insight into our energy efficiency over time, and where improvements can be made. We also need to look at reducing the impact of our energy production.

Figure 10 shows that per capita energy use has generally been declining since 2008 which may be due in part to extensive campaigns aimed at conservation, lower summer temperatures in 2014 which reduced air conditioner use and energy efficiency improvements in appliances.

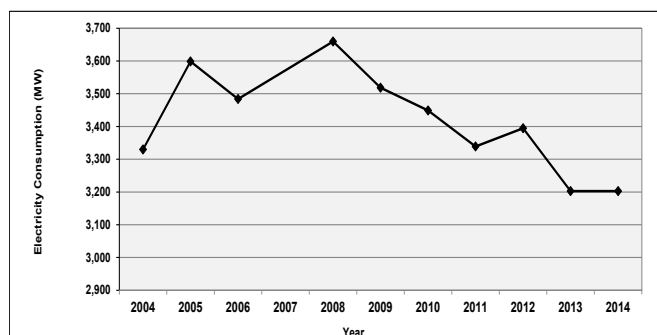


Figure 10: Per capita electricity consumption

Source: Oakville Hydro

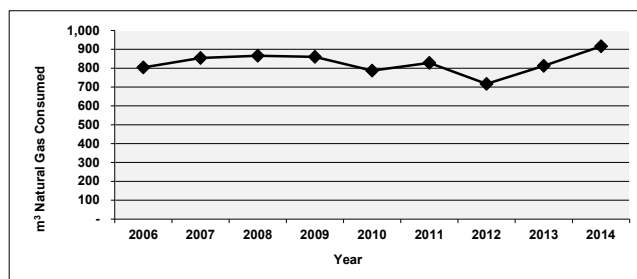


Figure 11: Residential per capita natural gas consumption

Source: Union Gas

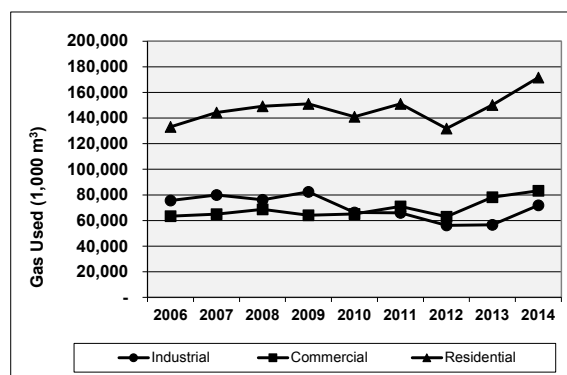


Figure 12: Natural gas consumption by sector

Source: Union Gas



Natural gas consumption is another component of our energy use. Natural gas is the main source of energy for residential heating in Oakville.

Figures 11 and 12 show consumption has increased slightly in all three sectors. Weather is a significant factor influencing natural gas use in the residential and commercial sectors. This may have been a factor in 2014, as winter temperatures were lower than average with 13 cold alerts spanning 41 days in Halton Region.

Solid Waste

The amount of waste diverted from landfills provides a measure of the effectiveness of our efforts to reduce, reuse and recycle. Waste going to landfills indicates the degree to which resources are wasted. The amount generated per capita helps to show the public's success in reducing their waste. Reducing the amount of waste we generate is becoming increasingly important as the remaining capacity of our landfills is quickly being used up.

Overall, the total amount of waste generated per person has remained relatively steady from 2005 to the present at around 350 kg per person, however, in 2014 overall residential waste per capita increased slightly. It is of interest to note that despite the increase, waste going to landfill has decreased while diversion (recycling) has increased.

Year	Landfill (T)	Diverted (T)	Total (T)
2014	26,630	38,372	65,002
2013	27,033	35,943	62,976
2012	27,882	36,281	64,163
2011	27,717	36,062	63,779
2010	28,402	36,843	65,245
2009	27,907	36,076	63,983

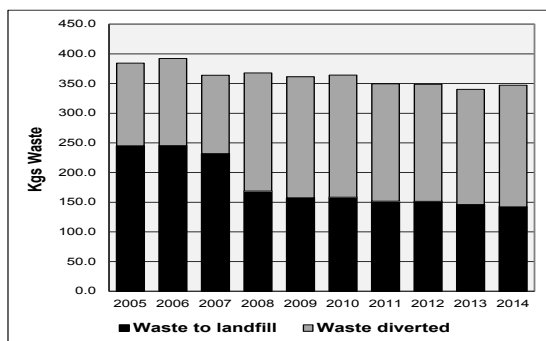


Figure 13: Residential per capita waste and recycling

Source: Halton Region

Water Conservation

Efficient use of water is good for the environment as it reduces our impact on water resources and reduces the energy required to treat and transport the water for our use. It is also good for cost avoidance, because it is cheaper to conserve water than it is to increase treatment capacity. Studies show that water efficiency measures can cost less than new infrastructure.

Year	Millions of Litres	Year	Millions of Litres
2014	142.2	2010	151.5
2013	145.2	2009	150.3
2012	160.0	2008	149.3
2011	Data not available	2007	165.2

Despite a population increase of 13% since 2006, total residential water use has remained fairly steady because per capita use has gone down over time (Figure 14) with 2014 experiencing the lowest water use over this period. Several factors may be contributing to the overall decreasing trend including the continued water reduction strategies put in place by Halton Region supported by the town such as the Outdoor Water Use Education Program and the annual rain barrel sale held each spring.



Water use in the industrial, commercial and institutional sectors has also shown a fairly sustained decrease over time as shown in Figure 15.

The trend towards hotter and drier summers can

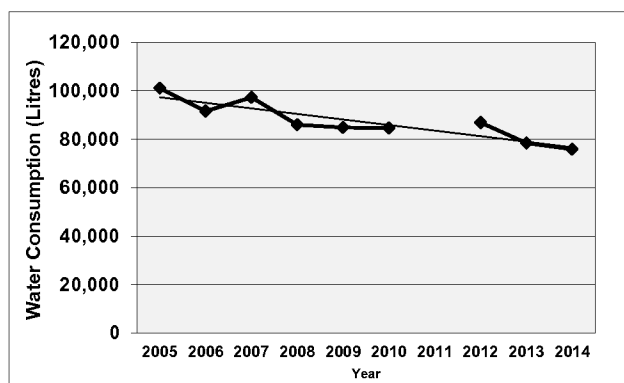


Figure 14: Residential water consumption per capita

Source: Figure 14 uses water data from Halton Region and is converted to per capita data using population estimates from the Town of Oakville. The calculation uses estimates therefore, this data may not be accurate and is only meant to support a trend analysis.

contribute to increased water use and it will be particularly important in coming years to monitor this potential scenario.

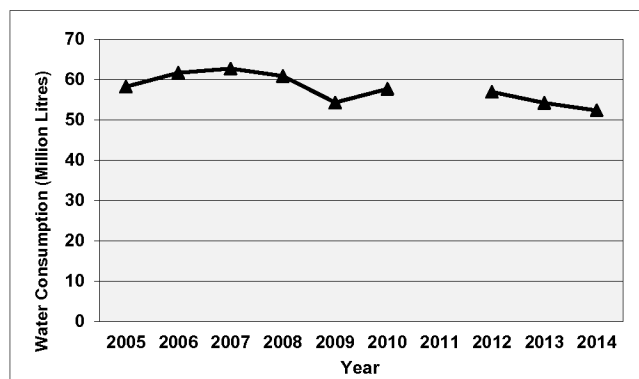


Figure 15: Industrial/Commercial/Institutional water consumption Source: Halton Region

What We Are Doing



Through its Conservation and Demand Management program, Oakville Hydro offers a number of programs to residential customers including incentives for replacing older inefficient appliances. In 2014, 298 units were decommissioned for an incremental peak demand savings of 19 kW and 130,190 kWh incremental energy savings.



Since 2008, the town has almost doubled its square footage of public facilities with the construction of new facilities, yet it has reduced its overall energy use by 16 per cent per square foot. The town's leading environmental policies and programs have greatly contributed to this achievement, including setting LEED certification goals for new town building construction.



The number of events served by the Water Bar Lending Program

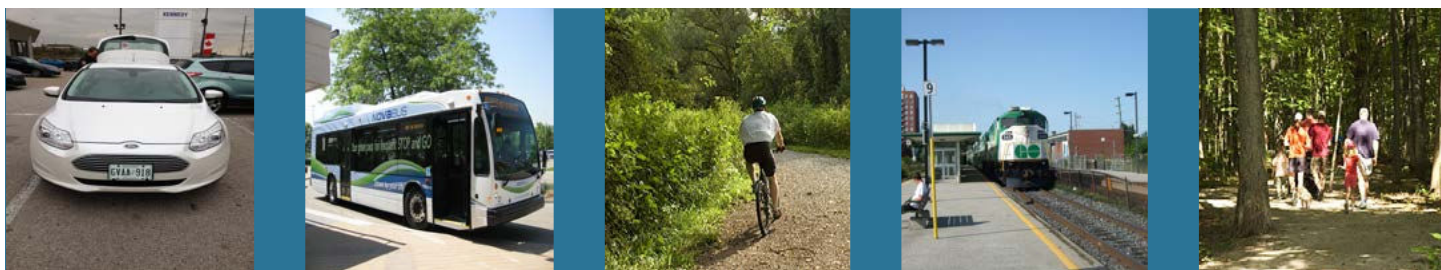
grows annually. Town staff have adapted resources to meet the needs of several types of events to decrease the use of disposable water bottles throughout town.

In 2014, the town's Parks and Open Space department deployed the water bars at over 30 events, all between the months from May to September.



The Town's Water Bar is now a staple at town and community events.

GOAL 3: To Establish and Support an Environmentally Friendly Transportation Network



Objectives

- 3.1 To enhance public transportation within and connecting to Oakville
- 3.2 To support bike and walking path infrastructure and connectivity
- 3.3 To encourage the use of alternative modes of transportation
- 3.4 To promote and use transportation demand management (TDM)

Indicators

- Oakville Transit trips per capita
- Oakville Transit net cost per passenger trip
- Population growth vs vehicle ownership
- Personal vehicle registrations

Key Data

Transit

We are measuring the number of times a year, on average, residents take Oakville Transit and the cost per passenger trip.

Generally, buses are more fuel efficient than automobiles. Burning one litre of gasoline generates two kgs of carbon dioxide (CO₂). Using a conservative estimate, the average car commuter generates at least 3,300 kg of CO₂/year.

In 2009 Oakville Transit introduced new route designs and numerous service improvements which have resulted in increased ridership as shown in

Figure 16. Overall ridership has continued to grow, although growth has now generally stabilized to keep pace with population increases. A new Intelligent

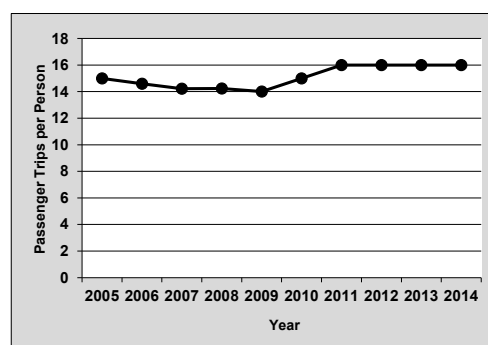


Figure 16: Oakville Transit passenger trips per capita

Source: Town of Oakville

Transportation Service (ITS) program is being rolled out at the end of 2015 and is expected to have a favourable impact on ridership.

As shown in Figure 17, while operating costs have increased due to rising labour, service and fuel costs, the net cost per passenger trip has levelled since 2009. Initiatives such as alternative fuel/hybrid buses,

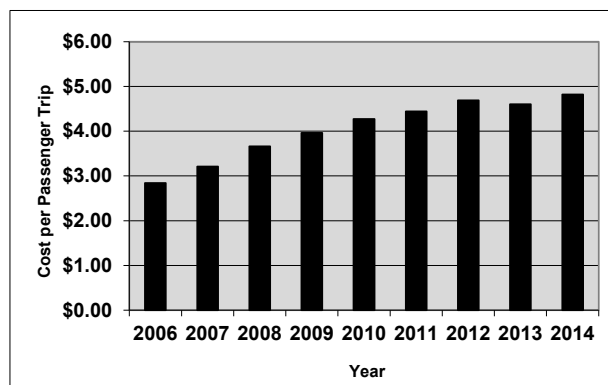
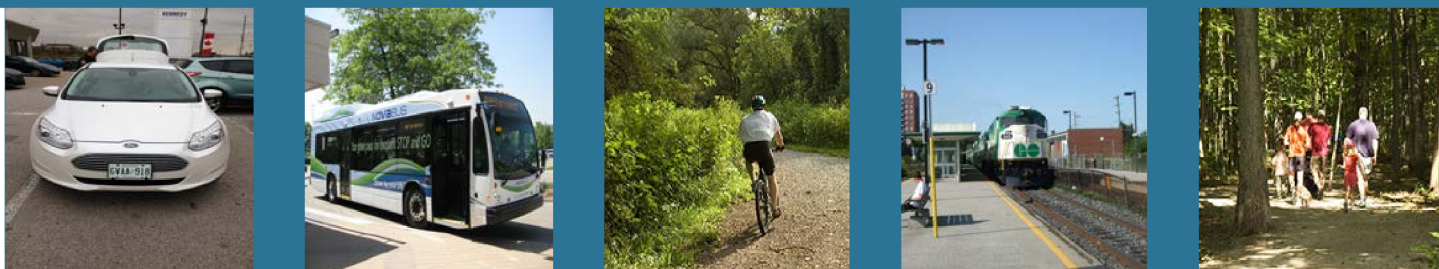


Figure 17: Oakville Transit net cost per passenger trip

Source: Town of Oakville



increased ridership strategies and partnerships with organizations such as Halton Region and Sheridan College will contribute to further stabilizing of costs in the future.

Transportation Choices

Transportation choices depend on commuting distance, accessibility of alternative transportation modes such as bicycle lanes and the success of Transportation Demand Management (TDM) programs. Cars can provide an easy means of travel, however their cost economically and environmentally is high.

According to Statistics Canada, 80% of residents use a personal vehicle for their commute. Figure 18 shows the relationship between population and vehicle ownership. The data shows that per capita car growth has generally outpaced population growth.

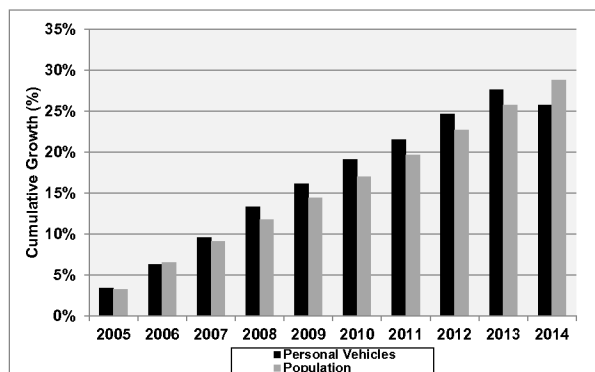


Figure 18: Population growth vs vehicle ownership in Halton
Source: Ontario Ministry of Transportation

As seen in Figure 19, this means the overall number of personal vehicles in Halton continues to rise. In 2009, the town developed an Active Transportation Master Plan (ATMP). This sets out a plan for increasing the accessibility and use of alternative transportation modes such as walking and bicycling.

To continue to support a desired level of active

transportation (cycling and walking), through the 2014 Active Transportation Capital Program approximately 20 km of active transportation facilities were implemented. In total, 266 kilometres of cycling, sidewalk and multi-use trails projects have been proposed through the ATMP to be completed by 2019.

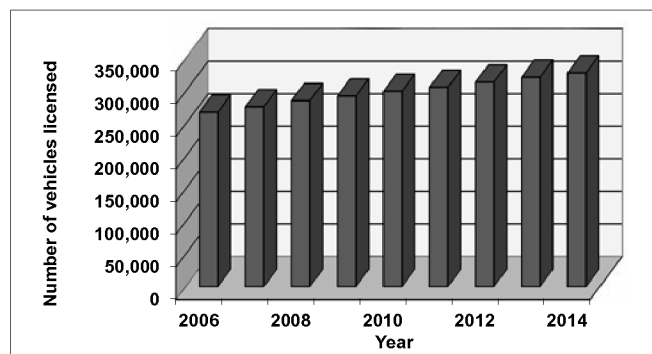


Figure 19: Personal vehicle registrations in Halton
Source: Ontario Ministry of Transportation

What We Are Doing



In Spring, 2015 conventional buses and four care-A-van buses began testing a new Intelligent Transportation System that works with GPS technology to track buses in real-time. A full roll out is taking place at the end of 2015.



In 2015, Halton Region endorsed the first Halton Region Active Transportation Master Plan (ATMP). Working in partnership with the local municipalities, the ATMP provides Halton with a strategy for on-road and off-road active transportation infrastructure. This includes 470 kilometres of new on-road infrastructure and 359 kilometres of off-road infrastructure throughout the region.



The town will be undertaking an update of its Active Transportation Master Plan in 2016.

GOAL 4: To Create and Support a Healthy Resilient Community



Objectives

- 4.1 To improve the health and safety of Oakville's neighbourhoods
- 4.2 To foster and sustain an environmentally sustainable urban form
- 4.3 To support green building practices
- 4.4 To support outdoor recreational opportunities in Oakville

Indicators

- Adopt-a-Park (hectares)
- Adopt-a-Trail (kilometres)
- Community garden plot rentals
- Kms of trails per 1,000 people
- Housing completions
- Building Permits (Gross Floor Area) issued

Key Data

Community Health & Green Space Access

We are measuring indicators for initiatives that will result in more ecologically friendly neighbourhoods. These include community garden plots, access to open space, the Adopt-a-Trail and the Adopt-a-Park programs.

These indicators reflect some of the elements that create visually pleasing and environmentally friendly landscapes. For example, community gardens offer opportunities for urban agriculture and beautification for residents who might not have access to land. It also offers social opportunities and produce may be

donated to foodshare programs, which creates even further benefits. An extensive body of research exists demonstrating the direct link between a healthy environment and human health.

There are approximately 300 kilometres of trails and 1,470 hectares of parkland available for adoption. As can be seen in Table 5, the amount of adopted land has remained relatively stable, however in 2014 the number of people involved in these programs overall increased.

Table 5: Oakville's "Adopt-a" programs

Adopt-a Park		
Year	Area (ha)	Participants
2014	200	59
2013	225	54
2012	185	56
2011	208	49
2010	212	46
2009	196	42

Adopt-a-Trail		
Year	Length (kms)	Participants
2014	103	132
2013	90	123
2012	80	103
2011	82	89
2010	72	83
2009	67	78

Community garden plots are also available through the town and Bronte Creek Provincial Park. For a fee, residents can rent a plot of land on an annual



basis. As shown in Figure 20, these plots have become increasingly popular and in 2014, 206 of the 209 plots were rented with waiting lists for the town locations. As population increases and there is a greater focus on “local food”, future demand is expected to increase.

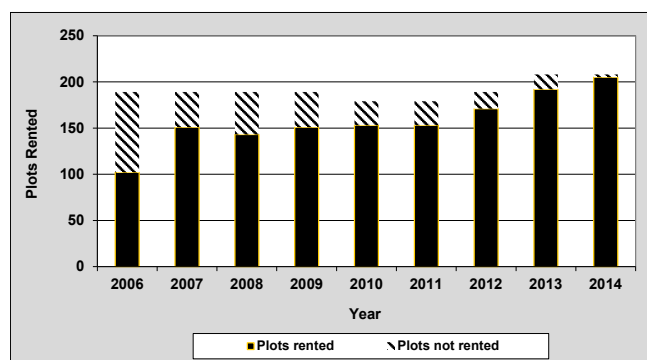


Figure 20: Community garden plot rentals in Oakville
Source: Town of Oakville and Ministry of Natural Resources

Trails are another important amenity that connect people with the outdoors. Oakville has one of the most extensive trail systems per capita in Ontario. Despite Oakville’s growing population, frequent additions of trail infrastructure have allowed for an increase in trail availability (Figure 21).

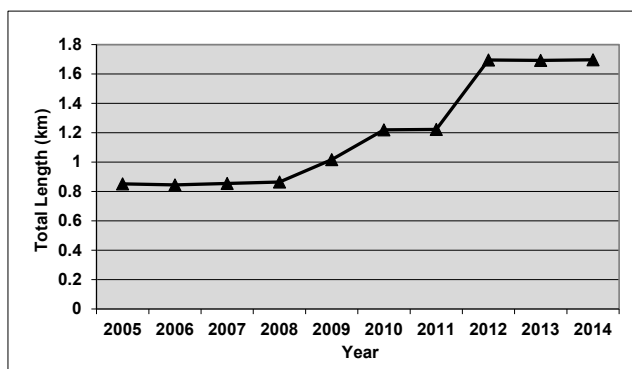


Figure 21: Total kms trails per 1,000 people
Source: Town of Oakville

In 2012, Parks and Open Space staff worked with a consultant in order to inventory the trail system to provide more accurate information. A major recalculation was done in GIS, which resulted in the number of kilometres for the trail system increasing significantly from 2011 (223 km) to 2012 (312 km). In 2014, a total of 318 kms of trails were available. New trails were added or refurbished in Kingsford Gardens and Donovan Bailey Park/Bronte Athletic Field and a new section of trail was also constructed as part of Mattamy’s ‘Lower Fourth’ development in North Oakville.

Green Development

Denser development, if planned appropriately, uses fewer resources, is transit friendly and supports a vibrant community. Ensuring an appropriate mix of housing is important in protecting our environment. In 2014, there were 1,192 housing completions in Oakville, almost double what was seen in 2013, however this is likely due to the increase in the number of apartment units built. Overall, 505 (42%) were singles, 254 (21%) were row dwellings (townhouses), and 433 (36%) were apartment completions. As shown in Figure 22, since 2004 housing densities have been moving away from single family to more dense forms.

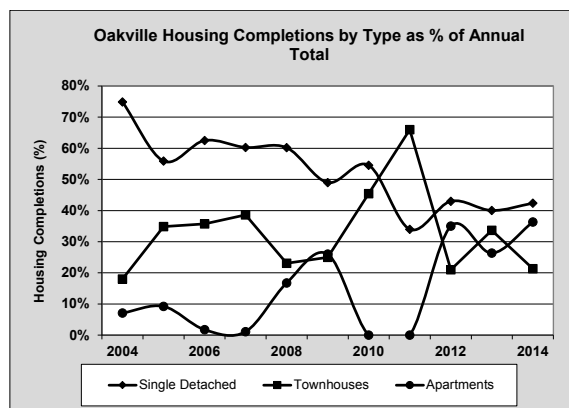


Figure 22: Oakville housing completions
Source: Canada Mortgage & Housing Corp.



The Halton Regional Official Plan (ROPA 38) introduced a housing density target for new housing, stating that at least 50% of new housing units produced annually in Halton be in the form of townhouses or multi-storey buildings. Depending on the lot size and type, townhouse densities can rival that of high rise densities and can also offer more affordable housing choices.

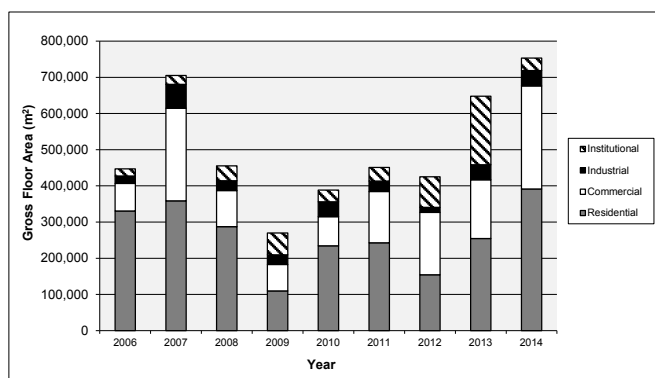


Figure 23: Oakville building permits issued
Source: Town of Oakville

As shown in Figure 23, during the economic downturn in 2009, construction starts declined considerably, however, since then numbers continued to increase and 2014 saw the greatest amount of floor space added since the SOER has been tracking numbers. Some of the major additions to Oakville's employment base in 2014 included Innomar Strategies Amerisource Bergen which brought 400 new jobs, and IPEX and Peter Kiewit Infrastructure who each added 120 new positions to the Oakville labour market.

What We Are Doing



The Heritage Grant Program was launched in late February 2014. The Heritage Grant Program is a three year pilot program with up to \$80,000 in total funding available each year. The program makes funds available to owners of heritage properties to cover up to half of the cost of

eligible conservation work to a maximum of \$15,000. Over \$235,000 in funding was requested for projects valuing more than \$580,000. The Heritage Oakville Advisory Committee recommended approval (in whole or part) of 21 applications to receive funding to distribute the entire \$80,000 in available program funding.



On May 12, 2014, Council endorsed the Livable by Design Manual (Part A) – Urban Design Direction for Oakville and passed by-law 2014-033 to adopt Official Plan Amendment 8 to the Livable Oakville Plan. OPA 8 was appealed to the Ontario Municipal Board and a settlement was reached and approved by the Board in December 2014. Both the design manual and OPA are now in full force and effect. The manual presents a comprehensive set of guiding design principles and urban design directives applicable town-wide (south of Dundas Street and north of Highway 407) for all forms of development, redevelopment and capital projects.



20 parks were redeveloped or improved in 2014. They included: new washroom at Fisherman's Wharf, new soccer fields (2) at Aspen Forest Park, rehabilitated ball diamonds at Glen Abbey and River Oaks; rehabilitated tennis courts at Holton Heights, Heritage Way, Aldercrest and Deer Run; rehabilitated splash pads at Neyagawa and Valleybrook Parks; new playgrounds at Kingsford Gardens, Greenwich, Horton Way and Kaitting House Parkettes, new shelters at Coronation, Neyagawa and Valleybrook Parks.

GOAL 5: To Foster Environmental Stewardship Through Education and Community Involvement



Objectives

- 5.1 To support and enhance a public education strategy to increase environmental awareness and stewardship**
- 5.2 To support and enhance programs to increase environmental awareness and stewardship**
- 5.3 To support and enhance the town's environmental indicators and monitoring programs**

Indicators

- Environmental Policy department outreach and education activities
- Oakville certified EcoSchools

Key Data

Outreach and Education

Education and outreach programs are key components supporting increased community awareness of environmental issues. Monitoring the number of environmentally related public outreach events that are put on by the town each year helps assess the town's efforts in raising the profile of the environment and to identify the need for stewardship with residents and businesses.

As shown in Figure 24, the town holds a significant number of outreach events. While the number of events attended has declined over time, the scale of

the events hosted has been increasing, creating better efficiencies with staff resources and numbers of people reached per event. In addition, the town has developed working partnerships with groups such as OakvilleGreen and Evergreen to deliver programs to the community.

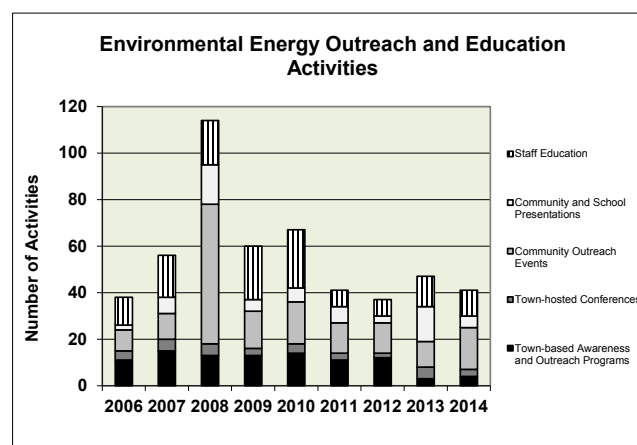


Figure 24: Environmental Policy department outreach Source: Town of Oakville

EcoSchools

The EcoSchools program annually reviews environmental management and education in schools. School boards designed this program to incorporate environmentally friendly actions within the school setting. A full outline of this program is available at www.ontarioecoschools.org

For the 2014-2015 school year, a total of 29 Oakville schools were certified, up by 9 from 2013. A total of 10 schools achieved Gold status, 17 achieved Silver and 2 achieved Bronze.

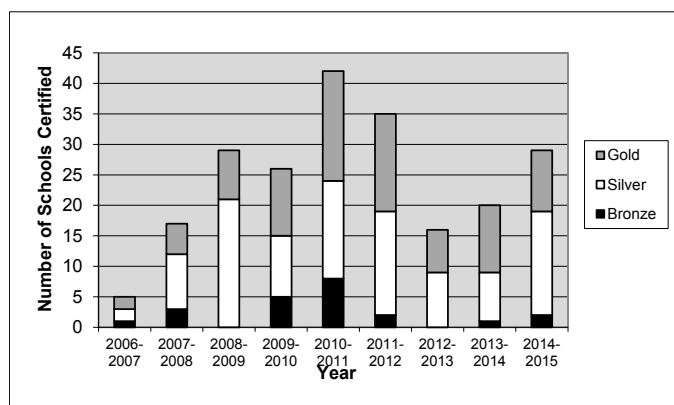


Figure 25: Oakville EcoSchools

Source: Halton District School Board and Halton Catholic District School Board

Individual schools continue to make efforts and these are acknowledged each year at the EcoSchool celebrations which are held in October and hosted by Halton Region. This event recognizes the achievements of Halton's schools, as many positive changes have been realized through the EcoSchool program.

What We Are Doing



2015 marked the 10th anniversary of the Halton Children's Water Festival which has been held annually at Kelso Conservation Area. As one of the original supporters of the festival, Environmental Policy once again helped to coordinate and deliver the festival between September 29 and October 2, 2015. More than 2,700 children in grades two to five attended, and several hundred high school volunteers led activities for rotating groups of elementary students.



Doreen Zheng of St. Ignatius of Loyola created 2015 Earth day poster

Since its inception in 2006, 34,500 elementary students have participated and learned about water through interactive and fun activities.



Halton Children's Water Festival (Conservation Halton)



In October, 2015 the

Oakville Rotary Club and members from TA Blakelock high school's Impact Club joined forces to plant 195 potted trees and shrubs and 288 grass and flower plugs at the Bronte Bluffs. This site is a key restoration site for the town and efforts here include the installation of a bioswale, numerous plantings and removal of invasive species.



To support the town's new Climate Change Strategy that was adopted in 2014, the town held a "Keep Calm and Adapt" event on May 9, 2015. Exhibitors from the town and community provided resources and information on how residents could help prepare for and adapt to extreme weather events. Keynote speaker Chris St. Clair from the Weather Network was a big attraction at the event and offered his insights on climate change.



As part of the town's efforts to ensure its own operations are "green", Environmental Policy staff conduct annual employee outreach events during "waste reduction week". Employees learn about recycling and the importance of reduce, reuse, recycle in their work.

GOAL 6: To Lead in Applying the Best Environmental Management Practices



Objectives

- 6.1 To be leaders in research, development and implementation of innovative environmental programs**
- 6.2 Promote partnerships with local businesses, schools and organizations**

Indicators

- Sustainable Green Fleet
- Towards Zero Waste
- Environmental Strategic Plan implementation status

Key data

The town has incorporated a number of innovative environmental programs. Tracking the progress of these programs provides insight into their value and the importance of making changes to town operations to assist in making them more sustainable.

Sustainable Green Fleet

The Sustainable Green Fleet Procedure was introduced in 2009. It involves a number of initiatives that save fuel and increase the efficiency of the town's fleet. Examples include restricting staff in town vehicles from using drive throughs, a driver training program (DriveSmart) and enforcing anti-idling rules.

Green Fleet procedures also include supporting use of the most fuel efficient vehicles, including electric,

hybrids and right sizing. Right sizing means selecting the smallest most fuel efficient vehicle, based on the task. Since 2006, 12 hybrid vehicles, and two right sized vehicles have been added to the Town of Oakville's fleet.

In 2011, the town joined the EV 300 program to assist with integrating electric vehicles into the fleet. As of 2014, four of the nine vehicles in the Town's Fire Prevention department fleet are electric and more are being added each year. Two regular and two high-speed charging stations have also been installed.

Towards Zero Waste

The Towards Zero Waste Procedure (TZW) was introduced in 2011. The program involves continuous improvement to avoid, reduce and divert waste created at town facilities, throughout town operations and at community events. In October, 2014 the Recycling Council of Ontario awarded the town Silver 3R Certification™ for its TZW efforts.

This designation recognizes organizations taking a leadership position in waste reduction and diversion based on a rigorous evaluation process. Oakville's Town Hall was the first municipal building in Ontario to receive this certification.



Employee incentives were offered as part of pilot project for K Cup recycling in 2015



Table 6 outlines some of the initiatives that were undertaken as part of the TZW program,

Table 6: Towards Zero Waste

To satisfy Ontario Regulation 102/94, the town audits the waste of all facilities with greater than 10,000 square feet of office space including Oakville Transit, Town Hall and Central Operations. Since 2013, all locations have shown improvements: Central Operations overall waste reduction of 45%; Oakville Transit waste diversion improved by 8%; Town Hall overall waste reduction of 50%.

A pilot K-Cup recycling program was implemented at Town Hall, Glen Abbey Community Centre, Maple Grove Arena, Kinkora Arena, Oakville Arena, Oakville Centre for the Performing Arts, Oakville Transit and Queen Elizabeth Park Community and Cultural Centre. From late January to August 2015 a total of 250 pounds of K-cup recyclables and compostables have been diverted from the landfill.

The town has been collecting and returning all corporate alkaline and rechargeable batteries, battery packs, cell phones and cell phone chargers through the Call2Recycle program since 2004. In 2014, town staff returned 156 kg of materials.

As a member of the Recycling Council of Ontario (RCO), the town has participated in the Take Back the Light CFL recycling and mercury removal program since 2009. Since then, the town has recycled approximately 4,231 lamps (1,146 in 2014).

Environmental Strategic Plan

The town's Environmental Strategic Plan was endorsed by Council in December 2005 with a subsequent update approved in December 2011. The ESP provides a road map for the town in working towards environmental goals. Each year, staff report on the progress of the implementation of this plan. Many of the recommended actions outlined in the 2005 ESP were carried over in the update as they are ongoing successful programs. The implementation of the updated ESP builds on the original and reflects the work of both the town and its community partners. To

learn more about the ESP, visit the town's website at www.oakville.ca/townhall/environmental-strategic-plan.html

The implementation of the updated ESP continues to move forward, and as of the end of 2014 the following actions were either complete or underway:

Table 7: Environmental Strategic Plan Implementation

Action	Implementation rate
Ongoing (OG) actions are existing programs and/or policies that will be continuing (total of 67)	100%
Short Term (ST) actions are recommended for completion by 2014 (total of 23 actions)	70%
Medium Term (MT) actions are recommended for completion by 2013-2016 (total of 19 actions)	63%
Long Term (LT) actions are recommended for completion beyond 2016 (total of 12 actions)	83%

In 2015, Oakville was named one of Canada's Greenest Employers, recognizing the town's commitment to environmental sustainability. This special designation recognizes employers that lead the nation in creating a corporate culture of environmental awareness who have developed exceptional earth-friendly initiatives and are attracting people to their organizations because of their environmental leadership. Launched in 2007, the Canada's Greenest Employers Award is part of the Canada's Top 100 Employers competition conducted by Mediacorp Canada.

3 Conclusion



Summary

Oakville is fortunate to have a wealth of natural features such as Lake Ontario, the Niagara Escarpment and numerous creeks and greenspaces within easy reach. Our environment is a key component that goes into making our town vibrant and attractive to residents and businesses alike. In the town's 2015 Citizen's Survey, 81% of respondents indicated they were pleased with the town's efforts to protect the environment and it was noted in discussions with residents at an open house that even further efforts would be welcome. While there wasn't a category strictly for the environment, a full 94% of respondents also indicated that they were very satisfied with the state of the town's green space and parks.

The SOER can assist us in continuing to improve our environment by highlighting where we are seeing positive changes and where we need to improve. In 2014, positive trends were seen in residents' efforts to reduce water use, engage in stewardship activities and reduce personal vehicle use, indicating that the commitment by the public to helping make a difference is thriving. Air quality also showed a slight improvement over 2013 levels, with decreases in both PM^{2.5} and ground level ozone.

Residential gas use per capita showed signs of weakening in 2014, however, given the particularly cold winter experienced in 2014 that saw 13 cold alerts spanning 41 days in Halton Region, it is not surprising that heating use saw a surge. Another area that generally saw declines was water quality, with 14 Mile Creek being impacted most. Overall, however, most of the gains and declines have been relatively minor in 2014 when compared to 2013 and we are generally stable with regards to those indicators measured this year. With an increasing population, however, we need to work on improving our individual actions even more if we want to decrease our overall impact on our environment.

The actions of individuals, families and businesses are critically important. For this reason, the SOER includes a What you can do section at the end of the book with a full list of resources that residents can utilize. We hope that you find this useful and do what you can to reduce your environmental impact.

While the data we are tracking is local, our choices have an impact not just on ourselves but also beyond our community. The town recognizes that while its own efforts are critical, the supportive actions of residents, community partners and other levels of government are crucial in order to see appreciable improvements. Over time, changes will not likely be the result of one action or program but rather through a combination of efforts. In addition to town based programs and initiatives, changing social norms, changes in consumption patterns due to increasing fuel and energy prices, global climate change and changes in federal or provincial policies will play significant roles in supporting more environmental sustainability.

4 What you can do



Reduce your impact on natural environments

- Remove invasive species widely found in Oakville such as Dog Strangling Vine and Garlic Mustard. Contact Conservation Halton for more information or see www.conservationhalton.on.ca/ShowCategory.cfm?subCatID=1114
- Think twice before cutting a tree down. Trees offer shade in the summer and protection from winter winds. Check out the town's Private Tree By-law at www.oakville.ca/residents/trees-protection-removal.html if you're thinking of cutting down a tree greater than 15cm diameter.
- When draining pool water, ensure chemicals have not been added for at least 10 days prior.
- Don't wash cars on driveways.
- Choose household products with little or no phosphate.
- In the winter, use either low or no chloride ice melt.
- Don't dump hazardous waste into sewers or drains. See www.halton.ca/waste to find out proper disposal locations.
- Visit <http://epa.gov/climatechange/wycd/> for tips and tools to reducing your greenhouse gas emissions.

Support healthy neighbourhoods

- Consider implementing a compost program not only at your home, but at your school or work.
- Grow your own garden for a personal supply of fresh fruits, herbs, and vegetables.
- Participate in one of the town's beautification programs or clean up events.
- Enjoy Oakville's trails. Get out for a hike with

family and friends. For great walking resources in the town, visit <http://www.halton.ca/cms/One.aspx?portalId=8310&pageId=12410> or contact the

town for a copy of the Cycle and Trails guide.

- Sign up for an outdoor recreation course or activity. The town's Recreation and Culture department offers a catalogue of programs and events twice a year. You can also check it out online at www.oakville.ca/culturerec/index.html.
- Consider adopting a trail or park. Help keep our parks and trails looking great and get outside for some fresh air and exercise. Visit www.oakville.ca/culturerec/adopt-a-programs.html
- Add "green" features to your home renovating.

Reduce your resource consumption

- Choose washable and refillable containers with little packaging for meals away from home.
- Purchase a stainless steel water bottle in place of disposable plastic bottles.
- Contact Halton Region for recycling and composting bins.
- It is estimated that 17% of a typical garbage bag in Halton is material that could go in the Blue Box. Take the time to separate your garbage into recyclables, compost and garbage.
- Bring your own re-usable bags when shopping.
- Consider belongings you no longer use - can you refurbish, donate or repair them?
- Set your thermostat to 25°C or higher during the summer, and 20°C or lower in the winter.
- Take advantage of the Watt Not Waste Not program to reduce energy, offered through Oakville's libraries. Visit www.oakville.ca/environment/energy-conservation.html to learn more.

What you can do, cont.



- Purchase a portion of your energy through green sources. Visit www.oakvillehydro.com or www.bullfrogpower.com
- Consider adding solar energy or geothermal technologies to your home.
- Replace incandescent light bulbs with LED or fluorescent light bulbs to increase energy efficiency and save electricity costs.
- Only use dishwashers and laundry machines when they are full and at night to reduce water waste and save on energy costs.
- Incorporate xeriscaping in your garden (plants and landscaping that don't require much water).
- Install low flow shower heads and toilets.
- When making purchases, choose "green" whenever possible.

Improve your transportation habits

- Consider biking or walking to work, school, shop or for short errands.
- Choose to live in a walkable neighbourhood with transit access.
- Start a car sharing group in your neighbourhood.
- Ensure the sidewalk in front of your house is cleared of snow in all seasons for pedestrians.
- Take public transportation when possible.
- Purchase a monthly transit pass. You never have to worry about change for the bus and it will encourage you to use the bus more often.
- If you commute, look at the options offered with the new PRESTO fare card. Take advantage

of seamless inter-regional travel. Visit www.prestocard.ca

- Avoid using drive thrus and don't start your car until you're ready to go.
- Turn the car off when picking people up from school or work.
- Keep your car running efficiently to save gas and prevent pollution, keep your tires properly inflated, do regular tune-ups.
- If you're looking into purchasing a vehicle consider an electric, hybrid or fuel efficient vehicle.

Get involved in the community

- Get involved in the implementation of Oakville's community sustainability plan. Learn more at www.oakville.ca/environment/integrated-community-sustainability-plan.html
- Support and attend environmental events. Sign up for the Halton Environmental Network's weekly newsletter at <http://haltonenvironment.com/?cat=273>
- Volunteer at a local school.
- Discuss environmental issues with your family and work together to come up with ways to reduce your ecological footprint.
- Encourage your children to join your school's environmental group or help start one.

5 Resources

Air quality and climate

- Halton Region is one of the pilot communities to roll out the Air Quality Health Index (AQHI). To learn more about this program and other information on air quality in Oakville, visit www.halton.ca/airquality
- For a list of anti-idling resources and information visit <http://idling.gc.ca>
- For information on the town's Health Protection Air Quality By-law, visit www.oakville.ca/environment/health-protection-air-quality.html

Energy

- Interested in learning more about solar or wondering if solar is right for your home? To learn more about renewable energy in Oakville, visit www.oakville.ca/environment/green-power.html

Healthy neighbourhoods

- For detailed information on Oakville's trails, including maps, photographs and a historical perspective, visit www.oakville.ca/culturerec/trails.html or pick up a copy of Oakville's trail and cycle guide at town facilities.
- For information on Halton Conservation's *Halton Hikes: 50 Great Trails* visit www.haltonhikes.ca
- Visit one of Halton's many farmers markets and support Halton farmers. Visit www.halton.ca for listings.

Natural areas

- For information on Halton's conservation areas and waterways, visit Conservation Halton www.conservationhalton.ca or call 905-336-1158.
- Want to know more about the town's wildlife and biodiversity? Visit www.oakville.ca/environment/wildlife-biodiversity.html
- The Halton Natural Areas Inventory (2006) was completed in partnership with Halton Conservation Authority and local field naturalist clubs. A copy of the report is available through Conservation Halton for a fee.
- For a listing of local naturalist clubs, visit www.ontarionature.org

Transportation

- Need a bus schedule or know where to buy tickets? Visit Oakville Transit at www.oakvilletransit.ca

Waste

- Do you want to drop off a used item or recycle something but don't know where to go? Visit www.halton.ca/waste for an easy to use directory.

Water

- Halton Region provides resources to help you conserve water. Visit www.halton.ca/toiletrebate to learn about low flush toilet rebates or www.halton.ca/WaterConservation to access their information on water efficiency.

General

- Oakvillegreen is an Oakville community association that has been working to protect our environment, promote sustainable planning and make sure that new development pays for itself. Visit www.oakvillegreen.com for more.
- For a listing of local environmental organizations, businesses and activities, the Halton Environmental Network (HEN) produces the Halton Enviro Guide: <http://haltonenvironment.com>
- For fact sheets on environmental topics, visit the town's website at www.oakville.ca/townhall/environmental-strategic-plan.html
- For general environmental information regarding the town, pick up a copy of the Environmental Stewardship Guide in the Environmental Policy department at Town Hall or at one of our many public outreach events or online at www.oakville.ca/environment/environmental-stewardship.html

6 Note for educators

Beyond the information provided in the SOER, there are many helpful links to programs and events throughout the Region. By accessing the *What you can do* or the *Resources* section you will find a wealth of programs catering to different audiences and many topics.

For links to curriculum information you can contact Trisha Henderson (trisha.henderson@oakville.ca) or Donna Doyle (donna.doyle@oakville.ca) for more information.

For general information from the Environmental Policy department regarding this guide you can email environment@oakville.ca

There are a number of great environmental education resources you can bring into your classroom. Some of our favourites are:

- OakvilleGreen educational programs www.oakvillegreen.com (go to the “for teachers” tab)
- Get to know www.get-to-know.org
- EarthDay Canada www.earthday.ca or www.ecokids.ca
- 52 tips for biodiversity http://ec.europa.eu/environment/nature/info/pubs/docs/brochures/biodiversity_tips/en.pdf
- BioKits program (Government of Canada) www.ec.gc.ca/biotrousses-biokits/default.asp?lang=En&n=B8362F13-1

We are always interested to hear when educators use the SOER as an education tool for their classrooms. If you have any additional comments and input for future guides please email the Environmental Policy department at environment@oakville.ca and share your ideas!





This document has been printed in-house to ensure we only print as many copies as are needed.



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