

## REPORT

COMMUNITY SERVICES COMMITTEE

MEETING DATE: DECEMBER 3, 2013

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**FROM:** Environmental Policy Department

**DATE:** November 15, 2013

**SUBJECT:** Oakville State of the Environment (SOER) 2013 Annual Report

**LOCATION:** Town-wide

**WARD:** Town wide

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**RECOMMENDATION:**

1. That the report from the Environmental Policy Department, dated November 15, 2013, regarding the Oakville State of the Environment (SOER) 2013 Annual Report, be received;
2. That prior to finalization the Director, Environmental Policy, be authorized to make minor edits to the Oakville SOER 2013 that do not substantially affect the substance of the report.

**KEY FACTS:**

The following are key points for consideration with respect to this report:

- This is the sixth annual State of the Environment Report (SOER).
- Highlights for key indicators are provided in the Council report and a full analysis is available as part of the SOER document.
- Air quality improved in Oakville in 2012 with a nearly 50% reduction in the number of times PM<sub>2.5</sub> exceeded the Canada Health reference level of 15 ug/m<sup>3</sup>. Further monitoring is needed to determine if this is a trend.
- 14 Mile Creek continues to be the most impacted of Oakville's three creeks as seen by increasing levels of phosphorus, chloride and total suspended solids in 2012, however both Bronte Creek and 16 Mile Creek had improvements in phosphorus levels with Bronte Creek's levels falling below the Provincial Water Quality Objectives (for maximum levels) for the first time since 2006.
- As in prior years, the SOER will be made available to the public through a variety of means such as school distribution, the town's website, environmental outreach events and as a mail out to both public and private schools.

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**BACKGROUND:**

The updated Environmental Strategic Plan (ESP) was endorsed by Council on December 19, 2011. The annual State of the Environment Report (SOER) provides a framework for establishing a baseline and for monitoring ongoing conditions related to the key goals contained in the ESP.

The SOER is based on a set of indicators. While these remain generally consistent to ensure the ability to measure changes over time, new indicators may be developed to better reflect emerging issues or to include new sources of information as they become available. The information contained in the SOER is geared to both staff and the public and encourages an open data approach towards information sharing. This is the sixth annual SOER report. The data is provided in a publication included as Appendix A to this report which shows consolidated data in the form of charts and tables however, staff also maintain full background reports and information related to the data.

Town staff, Conservation Halton, Oakville Hydro, Union Gas, Halton Region, the Halton Public and Catholic District School Boards, provincial ministries and volunteer agencies have all contributed data for incorporation into this year's SOER. It should be noted that as for previous editions, the data represents the last full year of data available which in this case is 2012.

**COMMENT/OPTIONS:**

The SOER and indicators are organized according to the six ESP goals:

- Goal 1 To sustain and enhance our natural environment: green space and biodiversity; air quality; water quality; climate change.
- Goal 2 To reduce our resource consumption and waste production: energy conservation; solid waste; water conservation.
- Goal 3 To establish and support an environmentally friendly transportation network: transit; transportation choices.
- Goal 4 To create and support a healthy resilient community: community health and green space access; green development.
- Goal 5 To foster environmental stewardship through education and community involvement: outreach and education; ecoschools.
- Goal 6 To lead in applying best environmental management practices: towards zero waste; sustainable green fleet; sustainable purchasing; Environmental Strategic Plan.

**2013 SOER Highlights**

The indicators used in the SOER reflect both the efforts we are making, such as the hectares of greenspace we set aside and the number of transit trips we take and also the condition or "state" of our environment such as water quality and weather

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patterns. Together, these indicators reflect a combination of both inputs and outputs, although how the two relate is not always clear. For example, we may make significant reductions in air pollutants in our airshed, however, it may not result in a direct reduction in air pollution as our air is affected by many different things, including the weather and activities outside our jurisdiction.

Despite the complexity of how our environment is responding and changing with the demands we are placing on it, with six years' worth of reporting we are gaining a better understanding of how our environment is "performing". We are also getting better at tracking our efforts. For the 2013 reporting, we have been able to observe and analyze some key trends as summarized below. Appendix A provides a draft of the 2013 State of the Environment Report with full commentary and Appendix B offers an "at a glance" view of the graphs for each indicator.

Following the finalization of the SOER and presentation to Council a 2-page report card will be prepared to provide for a simplified public outreach summary.

**Greenspace and biodiversity:** The town has identified its key open space and park lands through its official plan policies and is on track to protect these lands. In 2012, nine hectares of open space parkland was added to the town's inventory. While quantity is an important measure, quality is critical for supporting a rich variety of species necessary for a healthy ecosystem. As greenspace acquisition becomes increasingly difficult, improving and restoring these lands will become even more important. In 2012, a number of restoration projects were undertaken, including Glenorchy Conservation Area, the Anderson Street Parkette, South Shell Park and Perkins Passage in east Oakville and 1,733 town trees were planted, nearly double that in 2011. A number of new projects are planned for 2014, including extensive work required to replace the loss of Ash trees to the Emerald Ash Borer. As well, in 2014, we are working on adding an indicator to more accurately reflect the amount of greenlands restored, including mapping of all restoration sites. While we know where our greenlands are, we will be working towards a better understanding of the types of features that are there and their value from an ecological perspective. This will assist in providing insight into the quality of our greenlands, not just quantity.

Total suspended solids (TSS) is another "input" that can impact the health of our aquatic ecosystems. TSS are small particles of toxins, heavy metals, minerals and other inert particles that are easily moved in water. In high concentrations, they can clog fish gills, bury eggs and smother smaller organisms. While detailed data on biodiversity is unavailable on an annual basis, measures such as TSS provide information on parameters that can negatively impact aquatic life. This can provide insight into aquatic habitat quality and areas where we may need to focus attention. As with many other natural environment indicators, TSS showed a significant decline in 2009 but since then has been generally increasing in all three creeks (14

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Mile, 16 Mile and Bronte), with 14 Mile Creek being hardest hit as for a number of other water quality parameters which will be discussed in further detail below. TSS plays a significant role in depositing sediment in watercourses. The town initiated a sediment management study in 2013 to help determine sources. While this work will be focusing on the Bronte and Oakville Creek watersheds, it should provide valuable insights into 14 Mile Creek's condition as well.

**Water quality:** Water quality, as shown by phosphorus and chloride levels in Oakville's creeks, has been variable, with the best quality and stability at Bronte Creek and the poorest in 14 Mile Creek. Data since 2002 have shown phosphorus levels in all three of Oakville's main creeks have generally been in excess of the Provincial Water Quality Objectives (PWQO) of 0.03mg/L. For the first time since 2006, Bronte Creek has fallen below this threshold which is positive. While 16 Mile Creek's phosphorus levels still exceed the PWQO, a decrease in levels was noted in 2012. In contrast, 14 Mile Creek not only continued to remain above provincial standards but saw a significant increase making for a somewhat mixed message on this indicator. Sources of phosphorus include lawn fertilizers, atmospheric deposition, automobile exhaust, soil erosion, animal waste, detergents and wastewater treatment plant discharges, however, most of the sources of phosphorus are non-point (or coming from multiple sources and locations) which makes it harder to control and pinpoint specific inputs.

Chloride levels remained below the PWQO of 250 mg/L, although all three creeks showed an increase in levels from 2010. As noted earlier, water quality in 14 Mile Creek has demonstrated the greatest variations in contaminant levels. It is also the smallest and most urban of the three creeks which lowers its capacity to absorb these inputs. It is also a highly sensitive creek, supporting red side dace habitat, a species considered endangered under the provincial *Endangered Species Act*. A significant contributor to chloride levels is runoff from roadways and salt use during the winter and the town and region have been steadily decreasing their use of winter salt through a targeted Salt Management Program.

One of the impacts of climate change is the expected occurrence of more intense precipitation events so while the annual average may remain relatively constant over time, we are likely to see precipitation in bursts over the course of the year. This pattern would cause greater runoff over a shorter period of time which is expected to result in decreased water quality. For 2014, we will be adding an indicator to the SOER to represent the number of intense weather events in addition to annual average precipitation.

**Air quality:** In 2009, PM<sub>2.5</sub> values across the province showed significant signs of improvement which coincided with the peak of the economic downturn. 2010 and 2011 saw subsequent increases coinciding with the improved economy, although

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there are many other factors that impact air quality. The indicator selected to measure PM<sub>2.5</sub> is the number of times levels exceed 15 ug/m<sup>3</sup> averaged over a 24-hour period. In 2012, 13 days met this threshold, compared to 25 in 2011, a decrease of almost 50%. Several factors such as weather and automobile use can impact PM<sub>2.5</sub> levels, however precipitation and temperature remained relatively similar between the two years.

On February 1, 2010, the town passed the Health Protection Air Quality Bylaw (2010-035) (HPAQB). The HPAQB has a requirement for public disclosure on local emissions, and also provides regulatory measures to help reduce the levels of PM<sub>2.5</sub> in Oakville's ambient air over time. Since the implementation of the HPAQB, a number of Oakville's major businesses have made significant strides in reducing their emissions and as of 2013, there has been a reported reduction of 32% in PM<sub>2.5</sub> which is equivalent to 2,417 kg. This reduction is likely to have had some effect on the decrease seen in PM<sub>2.5</sub> levels in the local airshed.

Annual average ground level ozone has remained generally consistent in Oakville since 2004, although daily spikes are responsible for the majority of smog advisories.

**Electricity and gas use:** Since 2004 although there have been fluctuations in residential electricity consumption, decreases have been consistent since 2008 until this past year. 2012 saw a minor jump in per capita electricity use of 1.6% since 2011. There has been a focused campaign by all levels of government, utility companies and environmental organizations to encourage residents to find ways to save energy which has been a key factor in building awareness and action. Gas consumption is another component of our energy use and is the primary source of residential heating. Data from 2006 has demonstrated relatively stable residential per capita consumption of gas over time, although a slight decrease was seen in 2012, likely due to the unusually warm winter temperatures experienced over that winter. Industrial and commercial gas consumption has also remained relatively stable over time, although these sectors have also demonstrated slight decreases over the past year.

**Transportation choices:** One of the biggest components of greenhouse gas emissions is from transportation use. In Halton, vehicle ownership has consistently outpaced population increases since 2007. In addition to the total number of vehicles increasing because of additional residents, per capita use is also increasing at around 2% each year. Assuming an average of four people per household, this translates into approximately 2.5 vehicles per household. Further efforts will be needed to reduce personal vehicle use. In 2012, an Active Transportation Master Plan was approved by Council which sets the course for improving alternative modes of transportation. The town also recently saw the completion of the *Switching*

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Gears master transportation plan that focuses on delivering works to support sustainable transportation to 2031. In addition, the Region's transportation plan *The Road to Change* was approved in 2013 which also supports strategies that consider all modes of travel (automobiles, transit, cycling, walking) to the year 2031.

Major changes to Oakville's transit system were initiated in 2009 and continued into 2011 with routes and connectivity being improved and the addition of the PRESTO fare card. These resulted in an increase in ridership to 2011 which has now leveled off in 2012. Net cost per passenger also saw increases over that time, however, this also stabilized for 2012.

**Green development:** ROPA 38, Halton Region's Official Plan, introduced a housing density target for new housing, stating at least 50% of new housing units in Halton be in the form of townhouses or multi-storey buildings. In 2012, a total of 43% of homes built in Oakville were singles and 21% were townhouses (row-dwellings) and 35% were apartments. The general trend since 2002 in Oakville has been a gradual movement toward greater density and this continues into 2012. Since 2002, apartment completions peaked in 2012 with 471 units which is almost double the next highest year (2008) which came in at 276 units.

During the economic downturn in 2009, construction starts declined considerably, however, this has improved each year since and in 2012, the biggest gains were seen in the commercial and institutional sectors. In the institutional sector, the new Oakville Hospital made the greatest impact and commercial investments in expanded floor space has resulted in an additional 1,230 jobs in Oakville. Building permits for residential floor space declined in 2012 to near 2009 levels.

Building complete communities with opportunities to "live, work, play" can make a significant difference in reducing our need to travel further afield, in turn helping us reduce our greenhouse gas emissions. In addition to the positive trends seen in these indicators with increases in the institutional and commercial sectors, the town is also doing its part through the implementation of our Sustainable Green Building Guidelines and policies. The town now has one LEED certified building in its portfolio, two in the process of being certified and one currently being built to LEED standard. As per Livable Oakville and the town's Sustainable Green Building Guidelines, all future construction over 500m<sup>2</sup> is required to meet or exceed LEED silver standards.

**Community health and stewardship:** A growing field of research is linking the importance of access to green space and the outdoors to human health. In addition to the exercise opportunities that being outside offers, simply having "green" surroundings has been shown to improve both physical and mental health.

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Indicators include the town's "adopt-a" programs, trails and community garden spaces offered by both the town and Bronte Creek Provincial Park.

The town offers many opportunities to be connected to greenspaces. The Adopt-a-Trail and Adopt-a-Park programs continue to do well with 103 people or groups adopting a total of 80 kilometres of trails and 56 adopting 185 hectares of parkland.

Both the Town of Oakville and Bronte Creek also offer community garden plots. Combined, the total number of available plots increased from 179 to 189 thanks to the addition of 10 plots at Bronte Creek Provincial Park in 2012. Town plots were fully rented in 2012. In 2013, the town added 22 more community garden plots at Kingsford Gardens and this will be reflected in next year's numbers. Those at Bronte Creek are running somewhat under capacity which may be due to their more remote location. In addition to the community plots, as of spring 2012 the town also provides space and resources to a joint venture with the Oakville Sustainable Food Partnership for a community orchard at Kingsford Gardens which consists of over 25 various fruit trees, from apricot to apple, and over 20 berry bushes.

The sections outlined above highlight just some of the information that is provided in the full SOER document (Appendix A) where further data and analysis are represented. An overview of the graphs and tables found in the SOER are provided in Appendix B.

### **Outreach**

The SOER is made available to the public through a number of avenues. Key target audiences include schools, the general public, agencies and government departments requiring detailed information on Oakville's environment.

Strategies that are incorporated include an SOER page on the town's website, delivering SOER packages to all of Oakville's public schools and highlighting the SOER in school newsletters and events, providing the reports at Environmental Policy outreach events and delivering copies to all of Oakville's libraries. These same strategies will be employed in the distribution of the 2013 SOER. In 2012, we initiated a new "at a glance" format with a 2-sided report card and will be providing this again in 2013.

Staff continues to dedicate resources for education and outreach, with a special section of the SOER directed toward teachers. The SOER provides a valuable resource for staff and the community as a repository of environmental information and a tool for analyzing trends in key areas over time.

## CONSIDERATIONS:

### (A) PUBLIC

The SOER provides the community with information to support making lifestyle changes and decisions that will improve Oakville's environment. The report also assists in creating public awareness of the town's activities and the state of conditions and results of our actions on the environment.

### (B) FINANCIAL

There are no financial implications associated with this report.

### (C) IMPACT ON OTHER DEPARTMENTS & USERS

Many departments, agencies, community groups and individuals have contributed to the environmental indicators program. Departments have a continuing role to play to support reporting on these indicators. This program in turn supports departments across the corporation in managing their environmental data and the impacts of their programs and operations.

### (D) CORPORATE AND/OR DEPARTMENT STRATEGIC GOALS

This report addresses the corporate strategic goal to:

- enhance our natural environment
- have environmentally sustainable programs/services
- continuously improve our programs and services
- be accountable
- be the most livable town in Canada

### (E) COMMUNITY SUSTAINABILITY

The SOER promotes environmental stewardship and responsibility by raising awareness and providing concrete steps that can assist the town and its partners in achieving greater environmental sustainability.

## APPENDICES:

- Appendix A: State of the Environment report (draft)  
Appendix B: Indicator tables and graphs

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