OAKVILLE

REPORT

COMMUNITY SERVICES COMMITTEE

MEETING DATE: DECEMBER 15, 2014

FROM: Environmental Policy Department

DATE: November 20, 2014

SUBJECT: **Oakville's State of the Environment (SOER) Report 2014 Annual Report**

LOCATION: Town wide
WARD: Town wide

RECOMMENDATION:

1. That the report from the Environmental Policy Department, dated November 20, 2014, regarding Oakville's State of the Environment (SOER) 2014 Annual Report, be received; and

2. That prior to finalization the Director, Environmental Policy, be authorized to make minor edits to the 2014 Oakville SOER 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 seventh annual State of the Environment Report (SOER).
- Highlights for key indicators are provided in the Council report and the full suite of indicators is available as part of the SOER document.
- The majority of indicators showed improvement in 2013, notably, those related to water quality, water and electricity use and number of trees planted.
- Natural gas use showed an increase in 2013 which is most likely linked to the particularly cold winter experienced. Fine particulate matter ($PM_{2.5}$) which is one of the indicators of air quality showed a marked increase as well although based on additional data is likely linked to sources outside Oakville's airshed and a change in monitoring equipment used by the province that year.
- As in prior years, the SOER will be made available to the public through a variety of means such as the town's website, community outreach events and distribution to Oakville's libraries, and public and private schools.

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 seventh 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 2013.

COMMENT/OPTIONS:

The SOER and indicators are organized according to the six ESP goals listed followed by their respective indicators:

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*.

2014 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 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 local decreases in air pollutant emissions in our airshed, however, it may not result in an overall reduction in air pollution as our air is affected by many different things, including the weather and activities outside our jurisdiction in any given year. Even so, it is important to continue to work to reduce impacts on our local environment as it can be expected that future results will show local benefits.

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 2014 reporting, we have been able to observe and analyze some key trends as summarized below. Appendix A provides a draft of the 2014 State of the Environment Report.

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 2013, thirty hectares of 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. Over the past year a number of restoration projects were also undertaken, including at the Glenorchy Conservation Area, the Bronte Bluffs which was funded in part through an award from the provincial Great Lakes Guardian Community Fund, a partnered project with Evergreen and T.A. Blakelock High School to restore a small waterway in Coronation Park and numerous public tree planting events.

Going forward, we are working on more accurately reflecting the amount of greenlands restored, including mapping of all restoration sites. While we know where our greenlands are, it is important to have a better understanding of the types of features that are there and their value from an ecological perspective. This will further assist in providing insight into the quality of the town’s greenlands, not just quantity.

Total suspended solids (TSS) is an “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 offer information on parameters that can negatively impact aquatic life. In 2013, TSS showed a significant decline in all three creeks (Sixteen Mile, Fourteen Mile and

Bronte Creeks), despite increased precipitation levels in that year. TSS levels become significantly elevated during intense precipitation events which can make monitoring difficult to conduct and therefore capture water quality data under peak flow conditions. The low levels of TSS seen may partially be the result of sampling times coinciding with favourable weather. Connecting monitoring times with the timing and frequency of significant rain events would likely provide a more fulsome understanding around this indicator. Another piece that may offer more insight into TSS levels are the results of the town's sediment management study initiated by the town in 2013 which will be available for incorporation in the next SOER. This study focused on establishing the sources of sediment loading in the town's major creeks and will help further the town's efforts and policies in this area.

Water quality: Water quality, as shown by phosphorus and chloride levels in Oakville's creeks, has been variable over the years, with the best quality and stability generally seen in Bronte Creek and the poorest in Fourteen Mile Creek. In 2013, phosphorus levels dropped significantly in all three creeks and for the first time in ten years, all were below the Provincial Water Quality Objective (PWQO) of 0.03 mg/L. 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 pinpoint and control specific inputs.

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. Of note, many rain events during 2013 occurred on weekends, which were not included in the sampling regime.

Chloride levels also remained below the PWQO of 250 mg/L, with both Bronte and Sixteen Mile Creeks showing decreases and Fourteen Mile Creek exhibiting a very small increase. 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.

Air quality: Fine particulate matter ($PM_{2.5}$) and ozone have been selected as indicators to reflect air quality impacts in Oakville as both can impact human health.

Specifically, $PM_{2.5}$ as measured by the number of times levels exceed 15 ug/m^3 averaged over a 24-hour period is used as a measure, as this is the health reference level that Health Canada has determined health impacts may start to be seen. In 2013, 33 days met this threshold, compared to 13 in 2012 which is

comparable to the numbers seen just prior to the economic downturn in 2009. Factors such as weather and the burning of fossil fuel impact $PM_{2.5}$ levels, and weather conditions in 2013 (wetter and cooler) would normally have provided a mitigating effect, however, a change in the air monitoring systems used in Ontario was also made in 2013. These new monitors are able to detect additional components of $PM_{2.5}$, especially during cold weather. As a result of this improvement in monitoring technology, there is potential of reporting higher $PM_{2.5}$ concentrations during the winter months. This is a reflection of more accurate measurements and does not necessarily mean that Ontario's air quality is changing. The air is the same; only the monitoring method has changed. In Oakville, 17 of the 33 days were in cooler months.

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 $PM_{2.5}$ 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 $PM_{2.5}$ which is equivalent to 2,417 kg. While determining the cause of the increased levels of $PM_{2.5}$ seen in 2013, it is difficult to determine non-point sources of air pollution although based on the weather data collected and information gathered through the HPAQB, it is likely that the increase may be largely linked to sources outside Oakville's airshed.

Ground level ozone, as measured by annual averages, 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 there has been a general trend in decreasing per capita residential electricity consumption. In 2013 this trend continued. Focused campaigns to conserve energy, by all levels of government, utility companies and environmental organizations have encouraged residents to find ways to save energy which may be a contributing factor to these results. A cooler summer in 2013 (resulting in lower air conditioning use), increasing costs related to electricity and more energy efficient appliances are also likely factors. Gas consumption is another component of our energy use and is the primary source of residential heating. Data since 2006 has demonstrated relatively stable residential per capita consumption of gas over time, although a slight increase was seen in 2013, likely due to the particularly cold winter temperatures experienced.

Transportation choices: One of the biggest contributions of greenhouse gas emissions is 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 Gears Transportation Master 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 levelled off since then with no changes from 2012 to 2013. Net cost per passenger has also been stable since 2011. The upcoming roll out of an Intelligent Transportation System (ITS) will be the next significant change to the system and is expected to be implemented in 2015. This system will combine voice and text communications with tracking of buses relative to location, route and schedule; along with real time customer information capability that will allow for automated next stop announcements, pre-boarding announcements and automated customer information boards at stations, terminals and nodes. It can be expected that ridership will increase along with the improved service that will make it more convenient to use public transit.

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 2013, a total of 40% of homes built in Oakville were singles and 34% were townhouses (row-dwellings) and 26% were apartments which meet and exceeds the targets set by the Region. The trend towards increased density has been seen each year in Oakville since 2011 when these density targets were first met.

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. 2013 saw a continued positive trend in building permit activity with gains in most sectors (institutional, industrial, and residential) and status quo for commercial.

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.

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 90 people or groups adopting a total of 123 kilometres of trails and 54 adopting 225 hectares of parkland. In 2013, the number of participants in both programs was slightly down but the amount of trails and parks adopted increased.

The Town of Oakville and Bronte Creek also offer community garden plots. Combined, the total number of available plots increased from 189 to 209 thanks to the addition of 20 additional plots by the town at Kingsford Gardens. Town plots were fully rented in 2013. Those at Bronte Creek are running somewhat under capacity which may be due to their more remote location and 16 remained available.

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.

Outreach

Environmental Policy staff will be promoting the SOER to internal town departments as a way to easily and quickly access key environmental data that may assist in program/policy development and delivery. Presentations to senior managers and making electronic copies available to relevant departments will be carried out early in 2015.

The SOER is also made available to the public through a number of avenues. Key target audiences include schools, the general public, community groups and government agencies 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 community outreach events and delivering copies to all of Oakville's libraries.

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 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)

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