OAKVILLE

REPORT

COMMUNITY SERVICES COMMITTEE

MEETING DATE: DECEMBER 7, 2015

FROM: Environmental Policy Department

DATE: November 16, 2015

SUBJECT: **Annual State of Oakville's Environment Report**

LOCATION: Town
WARD: Town wide

RECOMMENDATION:

1. That the report from the Environmental Policy Department, dated November 16, 2015, regarding Oakville's State of the Environment (SOER) 2015 Annual Report, be received;

2. That prior to finalization the Director, Environmental Policy, be authorized to make minor edits to the 2015 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 eighth 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 town and neighbourhood level "ecological footprint" measure is being updated, however, values will not be available until year end 2015.
- Indicators include both "inputs" or things that we have control over (e.g. energy use, certified ecoschools, etc.) and "outputs" or things that reflect the state of the system (e.g. water and air quality).
- 2014 saw a number of positive trends. Efforts to reduce water use, engage in stewardship activities and reduce personal vehicle use were seen, although energy use increased, likely as a result of the particularly cold winter experienced.
- Water quality, reflected through total suspended solids, chloride and phosphorus either remained steady or declined in Oakville's creeks. The greatest changes were seen in 14 Mile Creek.
- Air quality showed slight improvements in 2014, with both ground level ozone and fine particulate matter ($PM_{2.5}$) demonstrating decreased levels.

- 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 all 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 eighth 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 2014.

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*.

2015 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 eight 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.

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 2014, 1.63 hectares of parkland was added to the town's inventory, giving a total of 2,455 ha of publicly held open space. 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 2014, a number of restoration projects were undertaken, including ongoing work at the Glenorchy Conservation Area, Bronte Bluffs and South Shell Park, as well as numerous public tree planting events and stewardship activities.

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. To assist in managing these lands, the town will be undertaking a biodiversity strategy beginning in 2016, subject to budget approval, that will assist in providing insight into the quality of the town's greenlands and how best to care for these assets.

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 2014, maximum levels of TSS demonstrated an increase in Fourteen Mile and Bronte Creeks, while

16 Mile Creek remained level despite slightly lower average precipitation levels last year. Although overall precipitation was down, rain events tended to happen more intensely over shorter periods of time. TSS levels become significantly elevated during these types of intense precipitation events which can make monitoring difficult to conduct and therefore capture water quality data under peak flow conditions. At the July 14, 2014 Community Services Committee, the results of the town's Sediment Management Strategy were presented. It was found that sources of sedimentation within Oakville's creeks were difficult to determine, however, were unlikely due to development and more likely to arise from natural processes and agriculture upstream.

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 2014, phosphorus levels remained relatively steady in both Bronte and Sixteen Mile Creek, well below the Provincial Water Quality Objective (PWQO) of 0.03 mg/L. Fourteen Mile Creek increased for the first time since 2011, exceeding the PWQO. 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.

Chloride levels also remained below the PWQO of 250 mg/L for both Bronte and Sixteen Mile Creeks, however, for chloride Fourteen Mile Creek saw an increase and exceeded the PWQO in this parameter as well. Because chloride ions are persistent and are entrained in the hydrological cycle, all chloride ions applied to roadways as road salts and/or released to the environment from storage yards or snow disposal sites can be expected to be ultimately found in surface water. 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.

$PM_{2.5}$ 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 2014, 29 days exceeded this threshold, compared to 33 in 2013 so it would appear this parameter is holding relatively steady and has returned to pre-2009 levels which was a year that saw a significant downturn in the economy. Factors such as weather and the burning of fossil fuel impact $PM_{2.5}$ levels. Weather conditions in 2014 (precipitation and temperature) are comparable to those seen in 2009, however, the increased

economic activity has resulted in increases of fossil fuel burning (transportation, industry, etc.) which is likely a major contributor to the increased levels. It should be noted that the town's Health Protection Air Quality By-law (HPAQB), enacted in 2010, has assisted in reducing 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 with a reported reduction of 32% in $PM_{2.5}$ which is equivalent to 2,417 kg, however, vehicular transportation continues to increase steadily.

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. In 2014, average annual ground ozone was calculated at 27 ppb, based on data from the provincial government.

Determining non-point sources of air pollution is challenging as air moves in patterns that cross jurisdictional boundaries, making it difficult to say with certainty what proportion of air pollution comes from within Oakville and what arises from outside. Estimates from the province have generally concluded that during periods of widespread elevated smog, more than 50 per cent of Ontario's ground-level ozone and fine particulate matter come from the United States although this is approximate. Despite this, it is still critical that we continue to work towards reducing our emissions so that we do not contribute to the pollutant loading.

Halton Region provides detailed information and reporting on air quality in the Oakville area and additional details can be found in their annual reports which are available on their website at www.halton.ca

Electricity and gas use: Since 2004 there has been a general trend in decreasing per capita residential electricity consumption. 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. In 2014, however, both gas and electricity use per capita increased. This trend change may likely be due to the particularly cold winter weather experienced that lasted into the spring of 2014. Heating degree-days are the number of degrees Celsius that the mean temperature is below 18°C on a given day. If the temperature is equal to or greater than 18°C, then the number will be zero. For example, a day with a mean temperature of 15.5°C has 2.5 heating degree-days; a day with a mean temperature of 20.5°C has zero heating degree-days. Heating degree-days are used primarily to estimate the heating requirements of buildings. In 2014, there was an increase of over 300 in heating degree days compared to 2013.

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, however, in 2014 there has been some positive news and vehicle ownership per capita decreased by 3%. Although this is a positive trend, continued efforts will be needed to reduce personal vehicle use as ownership remains at about 2.5 vehicles per household (assuming an average of 4 people per home). The town's Active Transportation Master Plan which sets the course for improving alternative modes of transportation is being updated in 2016 and improvements to the town's biking and walking systems continue to be made on an annual basis.

Since major improvements to Oakville's transit system were initiated between 2009 and 2011, transit use continues to hold steady as a per capita measure, although with population increases overall ridership has increased. In July 2015, Council approved a five year plan for Oakville Transit that will see additional improvements such as increased service, "home to hub" service for North Oakville and the Intelligent Transportation System (ITS) that is set to launch in December 2015. It is expected that ridership will increase along with the improved service that will make it more convenient to use public transit.

Net cost per passenger has continued to remain relatively stable with minor increases reflecting increases in operating costs.

Green development: ROPA 38, Halton Region's Official Plan, includes 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 2014, a total of 42% of homes built in Oakville were singles, 21% were townhouses (row-dwellings) and 36% were apartments. With a total of 57% of new housing consisting of medium to high density, this 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. 2014 saw a continued positive trend in building activity with a total of 753,478 m^2 of floor space issued in building permits. The greatest gains were seen in the residential and commercial sectors.

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 123 people or groups adopting a total of 90 kilometres of trails and 54 adopting 225 hectares of parkland. In 2014, the number of participants in both programs was up, with the total amount of trails increasing slightly and parkland decreasing slightly.

The Town of Oakville and Bronte Creek also offer community garden plots where residents can rent land for the season. In 2014, a total of 138 plots were offered by the town and Bronte Creek Provincial Park offered 70 for a total of 208. All locations at the town were fully rented for the season and all but 3 at Bronte Creek, demonstrating the interest in and need to have locally grown produce.

The sections outlined above highlight just some of the information that is provided in the full SOER document (Appendix A) where further data and analyses 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 2016.

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 accountable in everything we do
- 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

Prepared by:	Submitted by:
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Environmental Policy Department	Environmental Policy Department