

## REPORT

**REPORT TO:** Chair and Members of the Community and Corporate Affairs Committee

**REPORT FROM:** Dharmen Dhaliyah, Senior Manager – Climate Change and Asset Management

**DATE:** October 11, 2019

**REPORT NO.:** RP-2019-0023

**RE:** Town's Natural Assets Inventory and Valuation Project Update

### RECOMMENDATION:

That Report No. RP-2019-0023 dated October 11, 2019 regarding the Town's Natural Assets Inventory and Valuation Project Update Report be received;

AND FURTHER THAT staff report back to Council with final outcome of the Town's Natural Assets Inventory and Valuation Project as outlined in Report RP-2019-0023 and required next steps in the second quarter of 2020.

### BACKGROUND:

Municipalities across Canada are facing challenges to deliver required levels of service, including ageing infrastructure, financial constraints, and deterioration of their natural assets, all of which are exacerbated by the growing threat of climate change.

Natural Assets are often included in the definition for "green infrastructure" but they differ from engineered green solutions, such as bioswales and other low impact development applications. Natural Assets (NAs) such as forests, wetlands, and open green space, provide a range of ecosystem services upon which our society and economy depends. A well-managed natural asset will continue to produce a sustainable flow of services, such as stormwater management, air quality improvement, and reduction of carbon in the long term or even in perpetuity. Some of these services can be considered as providing a "civic function": for example, a forest protecting source water, or a wetland helping to reduce downstream flooding and stress on existing municipal infrastructure. At the same time, natural assets are currently under stress from population growth, development and climate change impacts. In order to protect these assets and the services they provide, it would be beneficial to account for them and manage them under existing municipal frameworks, strategies and policies such as asset management plans, stormwater management plans and Official Plans. This

requires accounting and valuation of services provided by natural assets such as stormwater management and source water protection.

The Town of Halton Hills recognizes the role of natural systems in providing critical civic services and in helping to mitigate and adapt to the threats posed by climate change. In the 2019 Capital Budget Council approved funding to initiate a project to inventory and assess the stormwater management services provided by natural assets which can inform strategies to manage them. The Town approached the Credit Valley Conservation Authority (CVC) to lead the project with support from the Friends of Greenbelt Foundation that provided grant funding of \$20,000. The results of the project will support the inclusion of NAs into municipal decision-making strategies in an effort to help ensure the sustainable provision of ecosystem goods and services and to reduce vulnerability to climate change impacts.

The purpose of this report is to provide an update on the completion of Phase 1 of the project and outline the next steps.

## **COMMENTS:**

### **Inventory of Natural Assets**

One of the key deliverables of the project is an inventory of natural assets within the Town's area. GIS data were provided by CVC, Conservation Halton and the Town. CVC then reviewed, validated and where necessary digitised the necessary data to delineate and sum up the natural assets in the Town's area.

For the purpose of the inventory, natural assets were categorized as either open space, wetlands of various types, or woodlands. The Town of Halton Hills holds the following natural assets noted in **Table 1**. These natural assets are mapped and may be viewed in **Appendix A**. A separate column was added to show the area of the assets that are owned by the Town to distinguish them from other privately and publicly owned assets (e.g., those owned by Conservation Authorities).

**Table 1 - Area of Natural Assets in the Town of Halton Hills**

Natural Asset Type	Total area in the Town of Halton Hills (Hectares)	Area Owned by The Town of Halton Hills (Hectares)
Open space	2,435.01	230.61
Wetlands	2,226.17	91.58
Woodlands	6,741.19	293.23

### **Natural Asset Stormwater Services: Level of Service and Valuation**

A hydrology model (EPA SWM model constructed and applied by CVC) was applied to access the performance/level of stormwater services, i.e. both water quantity and water quality control, provided by natural assets in the Town under both current and climate

change conditions. Valuation of these services was based on the cost of replacing their stormwater management performance with engineered infrastructure, such as stormwater ponds or infiltration trenches, if they were to be removed. Overall, stormwater management services provided by natural assets in the Town was valued at about \$2.8 billion, of which over \$190 million is provided by the assets owned and under control by the Town.

For example, the natural assets located in the Hungry Hollow Ravine encompass 75 ha of woodlands, 45 ha of wetlands and around 30 ha of open green space that provide close to \$60 million in stormwater quantity and quality control. **Appendix C** shows the natural asset areas in the Hungry Hollow Ravine and value of their services in more detail.

To account for the changing climate, natural asset performance was reassessed based on projected precipitation patterns under climate change conditions of 2065. Under the climate change scenario, it has been estimated that performance of natural assets remains unchanged. However, since the magnitude and intensity of rainfall is greater under climate change conditions, the inflow to the natural assets will be larger, and a bigger stormwater management pond or infiltration chamber will be required to provide the same control as is being provided by natural assets. This climate change analysis added an additional \$259 million to their valuation. A breakdown of the stormwater services provided by natural assets in The Town is presented in **Table 2** below. The comparison of service values under both existing and climate change conditions are demonstrated in **Appendix B**. **Appendix C** also shows those similar values for the Hungry Hollow Ravine example.

**Table 2 – Value of Stormwater Management Services of Natural Assets under Existing and Climate Change Conditions in the Town of Halton Hills**

Natural Asset Type	Value of SWM Services of NAs under Existing Conditions		Value of SWM Services of NAs under Climate Change	
	All	Owned	All	Owned
Wetland 1: Palustrine	\$161,630,039	\$3,638,288.81	\$172,725,910	\$3,888,056.64
Wetland 2: Isolated	\$262,925,466	\$6,497,635.95	\$298,882,889	\$7,386,246.12
Wetland 3: Riverine	\$375,219,380	\$43,772,880.08	\$403,671,328	\$47,092,068.20
Wetland: All Types	\$799,774,884	\$53,908,804.83	\$875,280,126	\$58,366,370.96
Woodland	\$1,089,687,666	\$47,399,511.68	\$1,206,659,878	\$52,487,598.76
Open Space	\$951,681,672	\$90,129,942.08	\$1,018,679,874	\$96,475,072.25
All NAs	<b>\$2,841,144,221</b>	<b>\$191,438,259</b>	<b>\$3,100,619,877</b>	<b>\$207,329,042</b>

## Next Steps

As part of the proposed Phase 2 of the project, the Town, in partnership with CVC, will select case studies sites for creation of an asset registry which compiles information on NAs in a format similar to the Town's asset management principles. It is anticipated that Phase 2 will involve the components below. Note that the exact scope is to be determined based on the Town's priorities and allocated budget.

- Quantifying and valuing levels of a wider variety of services provided by natural assets, including air quality improvement, recreation and property value enhancement.
- Performing a natural asset condition assessment, highlighting assets that may require intervention. As an example, a woodlot which ranks low among condition indicators due to invasive pests impacts (e.g., Emerald Ash Borer) or a lack of regenerative layer will be highlighted for further assessment and possible intervention.
- Estimating replacement cost of the natural assets in the study area(s)
- Conducting guided structured workshop with municipal staff to facilitate identification of:
  - Threats and risks to these assets and services they provide,
  - Potential effects to condition and level of service provision from the risks to natural assets.
- Where practical, identifying management and maintenance scenarios for the natural assets, including enhancement/restoration.
- Assessing the benefit-cost ratio for selected management scenarios.
- Developing an interactive asset registry capable of exploring and exporting the data developed in this project.

## **RELATIONSHIP TO STRATEGIC PLAN:**

This Report is an integral part of the Corporate Asset Management (CAM) Program which aligns with the Town of Halton Hills Strategic Action Plan related to Municipal Service Delivery, Financial Sustainability and Sustainability:

1. Effective, efficient and economical delivery of the Town's existing services;
2. Establish sustainable financing, asset management and master plans to acquire, operate, maintain, renew and replace all assets;
3. Preserve, protect and enhance the Town's environment.

## **FINANCIAL IMPACT:**

The Natural Assets Phase 1 project update report presents the valuation of natural assets and the services they provide from a stormwater management perspective. At this stage there is no financial impact to the Town. Phase 2 of the project will shed more light on sustainable funding requirement (the future investments needed to refurbish or replace) necessary to preserve and protect the Town's natural assets and maintain the

current levels of services. Additionally, Phase 2 will help prioritize investment into addressing at-risk natural assets highlighted in the condition assessment.

**CONSULTATION:**

CVC consulted with Conservation Halton, the Asset Management Network Team and staff in general from different departments throughout the project and during the preparation of this report.

**PUBLIC ENGAGEMENT:**

Public engagement was not required at this stage.

**SUSTAINABILITY IMPLICATIONS:**

The Town is committed to implementing our Community Sustainability Strategy, Imagine Halton Hills. This report supports the Environmental Health pillar of Sustainability and in summary the alignment of this report with the Community Sustainability Strategy is Excellent.

**COMMUNICATIONS:**

Staff will communicate the Report to departmental staff by making the document available on the HUB.

**CONCLUSION:**

Staff recommends the approval and endorsement by Council of the Report and to continue with the CAM program to be in compliance with the O.Reg.588/17: Asset Management Planning in Municipal Infrastructure. The Town continues to be a strong advocate in preserving its natural assets and is committed to improve resiliency of the environment and community in the face of climate change.

The goal of the Town and CVC is to continue the partnership and funding opportunities associated with endeavors in this crucial area.

Reviewed and Approved by,

A handwritten signature in black ink, appearing to read "Warren Harris". The script is cursive and somewhat stylized.

Warren Harris, Commissioner of Recreation and Parks

A handwritten signature in black ink, appearing to read "Brent Marshall". The script is cursive and fluid.

Brent Marshall, Chief Administrative Officer