Item 7.1

Section I – Items for Regional Watershed Alliance Action

TO: Chair and Members of the Regional Watershed Alliance
Meeting #3/18, Wednesday, November 14, 2018

FROM: Noah Gaetz, Senior Manager, Research and Knowledge Management

RE: TRCA'S EVOLVING APPROACH TO NATURAL HERITAGE PLANNING AND NATURAL SYSTEM UPDATE

KEY ISSUE

TRCA is updating its Terrestrial Natural Heritage System (2007) to incorporate new and updated data and recent advances in ecosystem science. This update will ensure TRCA continues to support its municipal partners with the most up to date, science based information and tools.

RECOMMENDATION

WHEREAS TRCA uses natural heritage science to inform its watershed management programs and support its municipal partners on matters related to greenspace land use planning decisions;

AND WHEREAS TRCA's understanding and approach to natural heritage management has continued to evolve in response to advancements in ecosystem science and TRCA is updating its natural heritage system to ensure it incorporates new information, the latest science, data and tools available;

THEREFORE staff presentation and draft background report on the update of the natural heritage system be received for Regional Watershed Alliance information and input;

THAT the *Greenspace and Ecosystem Services Working Group* of RWA consider integrating the natural heritage system update as a key component of their work;

AND FURTHER THAT any future community consultation on the updated draft natural heritage system be coordinated with TRCA's municipal partners through the Municipal Comprehensive Review Process;

AND THAT the Greenspace and Ecosystem Services Working Group and the RWA be advised of Municipal Comprehensive Review/Official Plan Review consultation dates once these are known.

BACKGROUND

Natural heritage planning has evolved over the last few decades in response to an improved understanding of landscape ecology and the extent to which urban development can impact ecological function and biodiversity. Early natural heritage planning focused solely on protecting the most significant natural areas on the landscape. This progressed into recognizing the need to identify, protect and restore connected and expanded natural areas as natural heritage systems. Most recently a more integrated approach to natural heritage planning has emerged, one that considers the whole landscape mosaic, including the built portion, for its ability to support biodiversity and other ecological functions and services. TRCA has been at the forefront of this evolution, ensuring that TRCA and its municipal partners have relevant and scientifically

defensible information and support to make informed watershed management and land use planning decisions.

Protection of Significant Natural Features

In 1982 the Toronto and Region Conservation Authority (TRCA) completed an Environmentally Significant Area (ESA) study. This study identified areas of environmental significance and provided direction for their recognition and management.

The original ESA program was updated in 1993 to reflect contemporary ecological theory of the time, particularly with regards to recognizing the negative ecological impacts of fragmented and ecologically isolated natural features.

The 1996 Provincial Policy Statement (amended in 1997) provided natural heritage policy direction that required identifying and protecting significant natural features from impacts associated with land use change.

Identifying and protecting significant natural areas through programs such as the TRCA ESA initiative and the land use planning process helped secure and protect several important natural features. However, the ecological data collected by TRCA through the late 1990s and early 2000s as part of the ESA program highlighted an alarming reduction in biodiversity as urbanization continued.

Natural Heritage System Planning

This new understanding, along with advancements in landscape ecology and geographic information systems, helped TRCA and others recognize that a new approach to natural heritage planning was needed in order to protect and, if possible, enhance biodiversity and ecosystem functions and services in a rapidly urbanizing region.

TRCA began the development of the Terrestrial Natural Heritage System Strategy (TNHSS). This strategy, endorsed in 2007, used landscape ecology principles and spatial modeling tools to identify a connected and expanded natural heritage system that would help to maintain and restore regional biodiversity. It also explicitly recognized the importance of biodiverse and functioning natural systems in providing ecosystem services important to the well-being of the people and communities within the region.

Several provincial planning documents, including the updated Provincial Policy Statement (2005, 2014), the Oak Ridges Moraine Conservation Plan (2002, updated 2017), and the Greenbelt Plan (2005, updated 2017) have identified the need for natural system planning.

Over the past ten years TRCA has been supporting our municipal partners as they have incorporated natural systems into their official plans and other planning documents.

Although the protection of significant natural features remains an important part of natural heritage planning, the identification of connected and robust natural systems as part of the land use planning process has resulted in a more comprehensive and successful approach to natural heritage protection which has, in part, helped slow the trend of biodiversity loss.

Green Infrastructure

In addition to recognizing the importance of identifying and protecting natural heritage systems, the last 10 years has also seen greater attention focused on how the built portion of the landscape can be designed and managed to improve biodiversity and other ecosystem functions and services. Implementation of green infrastructure outside of natural areas (e.g. green roofs, street trees, community gardens) has emerged as an important way to view and manage natural

vegetative systems as vital infrastructure to support ecosystem function and the health and well-being of human communities. The 2014 Provincial Policy Statement defines green infrastructure this way:

> *Natural and human-made elements that provide ecological and hydrological functions and processes. Green infrastructure can include components such as natural heritage features and systems, parklands, stormwater management systems, street trees, urban forests, natural channels, permeable surfaces, and green roofs.*

Over the past 10 years TRCA has been partnering with many of its municipalities in the development of urban forest studies. These studies have helped to understand the current condition of the urban forest, quantify the benefits the forest provides and outline management recommendations.

The most recent update to the growth plan for the greater golden horseshoe (2017) recognizes the importance of green infrastructure in helping to support the establishment of complete communities and improve resiliency to climate change.

RATIONALE

In 2018 TRCA began updating its 2007 natural heritage system. The update will draw from a number of new advancements in science and practice, both locally and globally, in landscape ecology, urban ecology, and conservation planning along with updated data and advanced modelling and GIS techniques.

The update will incorporate a number of new analyses and components including:

1. Partner municipalities NHS(s) as appropriate.
2. Existing climate change vulnerabilities of terrestrial and aquatic systems
3. Terrestrial biodiversity, habitat, and connectivity needs under current and future urbanization (including green infrastructure) and climate change scenarios
4. Aquatic biodiversity, habitat, and connectivity needs under current and future urbanization and climate scenarios
5. Critical hydrological linkages between aquatic and terrestrial systems under current and future urbanization and climate change scenarios
6. Other ecosystem services as co-benefits provided by current and future landscape under current and future urbanization and climate change scenarios

This update will define a connected natural heritage system as well as identify green infrastructure opportunities within the built portion of the landscape, therefore allowing for a comprehensive approach to natural heritage planning that considers how the entire landscape mosaic can contribute to biodiversity objectives.

FINANCIAL DETAILS

The update to the natural heritage system is fully funded by municipal capital levy.

DETAILS OF WORK TO BE DONE

The comprehensive update to the natural heritage system will be complete in 2020. However, there are three distinct phases to the update each with its own discrete deliverables. Therefore, as new analysis is complete it will be available to inform implementation opportunities as they arise including incorporation into watershed plans and informing municipal conformity requirements.

Staff to work with RWA's Greenspace and Ecosystem Services Working Group to incorporate key milestones into their workplan. The Regional Watershed Alliance will be kept informed of progress on the update and will be asked to provide feedback at key points during the process.

Staff to work with TRCA's Municipal partners to ensure coordination of any future consultation needs through the Municipal Comprehensive Review Process.

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