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Town of Aurora
Committee of the Whole Report
No. PDS24-079

Subject: Natural Capital Asset Management Plan

Prepared by: Natalie Kehle, Energy and Climate Change Analyst

Department: Planning and Development Services

Date: July 2, 2024

Recommendation

1. That Report No. PDS24-079 be received; and
2. That Council adopt and approve the draft Natural Capital Asset Management Plan, including all proposed levels of service therein.

Executive Summary

The Natural Capital Asset Management Plan (NCAMP) represents an important step forward towards the continued protection and conservation of the Town's natural areas. Natural ecological areas within Aurora provide numerous benefits that have economic, environmental, and societal value. These areas of natural capital provide benefits such as clean water supply, natural filtration of contaminants, water flow stabilization, greenhouse gas mitigation and climate resiliency, erosion control, nutrient cycling, habitat, recreation, health benefits and cultural pursuits. The NCAMP takes on a long-term outlook in the sustainability of Town-owned natural assets by incorporating them into existing asset management planning processes.

- The NCAMP was developed through consultation with Town staff and stakeholders and followed municipal best practices for natural capital asset management.
- The NCAMP fulfills the requirements under O. Reg. 588/17 through the inclusion of Town-owned green infrastructure into municipal asset management planning and aligns with the Town's Corporate Asset Management Plan (AMP).

- The NCAMP outlines the requirements for the sustainable delivery of services over the planning periods of 10 years and 25 years.
- NCAMP review and monitoring follow O. Reg. 588/17 with a 5-year plan update and annual review.

The final draft NCAMP is provided in Attachment 1.

Background

In 2013, the Town conducted an initial baseline estimate of the benefits provided from the existing stock of natural capital in the Town through The Economic Value of Natural Capital Assets. The report focused on the economic valuation which was based on estimated land areas, asset categories and economic values from several data sources.

In 2017, Ontario Regulation 588/17: Asset Management Planning for Municipal Infrastructure (O. Reg. 588/17), was filed under the *Infrastructure for Jobs and Prosperity Act, 2015*, S.O. 2015, c. 15, to support municipalities in asset management and planning. O. Reg. 588/17 facilitates asset management best practices by providing a degree of consistency to asset management plans and leveraging asset management planning to optimize infrastructure investment decisions.

With the introduction of O. Reg. 588/17, Ontario became the first province in Canada to regulate asset management planning at the municipal level. In accordance with the regulation, municipalities are required to inventory, value, and integrate green infrastructure, including natural infrastructure and by extension natural assets, into their asset management planning when these assets are directly owned by the municipality.

On June 7th, 2022, the Town Council directed staff to undertake a study of the Town's natural capital assets that established the economic value of the Town-owned natural capital assets and that aligned with the Asset Management Planning for Municipal Infrastructure, O. Reg. 588/17.

Analysis

The NCAMP was developed through consultation with Town staff and stakeholders and followed municipal best practices for natural capital asset management.

Town staff and stakeholders that were consulted throughout the development of this plan included: Operational Services, Engineering & Capital Delivery and Financial

Management Services. The Environmental Advisory Committee was introduced to the project at the initiation stage, and presented with the draft plan to obtain their feedback.

The NCAMP fulfills the requirements under O. Reg. 588/17 through the inclusion of Town-owned green infrastructure into municipal asset management planning and aligns with the Town’s Corporate Asset Management Plan (AMP).

The definition of what constitutes a municipal infrastructure asset for the purpose of O. Reg. 588/17 includes “green infrastructure”, which is defined in the regulation as an:

infrastructure asset consisting of natural or human-made elements that provide ecological and hydrological functions and processes and includes natural heritage features and systems, street trees, urban forests, etc.

Although stormwater infrastructure and trails are considered a natural asset, they have not been included under the NCAMP as they are captured in the corporate AMP. The assets included in this plan are listed in Table 1.

Table 1 Natural Assets included in the NCAMP

Asset Category	Asset Class	Description
Natural Area Assets	Forest and open space	Forested, naturalized or un-mowed open spaces
	Wetland	Area where water covers the soil or is present either at or near the surface of the soil all year or for periods of time during the year. Includes swamp and marsh areas
	Waterbody	Area submerged under a significant accumulation of water
	Watercourse	A defined channel, with a bed, bank or sides, in which a flow of water regularly or continuously occurs
Natural Enhanced Assets	Community Gardens	Sets of raised garden plots where residents can grow plants
	Pet Cemetery	Forested area with manicured sections containing headstones and paths (under restoration)
	Urban Park	Manicured grassy areas
	Urban Tress	Town-owned street trees and park trees. Excludes trees in forests and open spaces

The NCAMP outlines the requirements for the sustainable delivery of services over the planning periods of 10 years and 25 years.

The NCAMP is a compilation of four key sections that include the following:

State of Infrastructure: Summarizes the inventory, valuation, condition, and remaining life of the assets in the inventory by service and asset type. Overall, 86% of the Town’s natural assets are in Good or Very Good condition.

Levels of Service (LOS): Documents LOS performance indicators and targets, presents current performance, and discusses the future performance outlook. Formal targets have not been established for most of the LOS. Instead, the metrics will be monitored to track year-to-year changes, and to observe their relationship with community satisfaction and operational and capital costs.

Asset Management Strategy: Identifies risks to natural assets, including climate risk, recommends mitigation actions, and identifies strategies to mitigate risk while providing the required LOS. The following three asset management strategies (scenarios) were considered in the analysis and are detailed in Table 2:

- Scenario A Status Quo includes monitoring and maintenance of natural enhanced assets, but very little for natural area assets.
- Scenario B increases rehabilitation, monitoring and maintenance for natural area assets.
- Scenario C is similar to Scenario B, but includes funds for more aggressive rehabilitation, monitoring and maintenance for natural area assets.

Table 2 Comparison of Lifecycle Activities for Scenarios A, B and C from 2025-2049

Lifecycle Activities	Scenario A Status Quo	Scenario B Moderate	Scenario C High
Condition Assessment Assets: Forests, open spaces and wetlands (percent of total natural area covered)	0	17% per year for the first 6 years, 10% per year thereafter	20% per year for the first 5 years, 10% per year thereafter
Condition Assessment Assets: All streams (frequency of assessment)	Every 10 years for all Scenarios		
Condition Assessment Assets: Urban park trees and street trees (frequency of assessment)	Every 10 years for all Scenarios		
Net new trees planted by the Town Assets: Urban park trees and street trees (over a 25 year period)	1,500 trees	2,000 trees	4,000 trees
Net new trees planted through continued partnerships Assets: all natural areas (over a 25 year period)	11,125 trees for all Scenarios		
Replacement of dead/ dying trees Assets: Urban park trees and street trees (over 25 year period)	6,000 trees (82% of the forecasted need)*	7,000 trees (95% of the forecasted need)*	7,375 trees (100% of the forecasted need)*
Invasive Species Control Assets: forests, open spaces, and wetlands	2% of total natural areas	13% of total natural areas	45% of total natural areas
Targeted seeding and planting Assets: forests, open spaces and wetlands (based on condition assessment outcomes)	1% of total natural areas	2.4% of total natural areas	4.8% of total natural areas
Stream Management Master Plan Update in 2029 and 2039	Included in all Scenarios		
Urban Forest Study Update in 2034 and 2044	Included in all Scenarios		
Tree Inventory Update in 2025, 2035 and 2045	Included in all Scenarios		

* Percent of need is the number of trees replaced under the scenario compared to the estimated forecasted replacement requirements (based on age and/ or condition of the trees).

Financing Strategy: Provides financial analysis for each scenario to identify renewal needs over a planning horizon of 10 and 25 years. Table 3 summarizes the costs of each scenario.

As the Status Quo scenario, Scenario A represents the anticipated annual funding available, and is used to calculate the funding gap, or additional funding needed, for Scenarios B and C. The table shows that an average of \$320,000 per year additional funding would be needed for Scenarios B and \$700,00 per year additional funding would be needed for Scenarios C.

Table 3 Comparison of 10-Year and 25-Year Costs* for Scenarios A, B and C

	10-Year Cost Comparison			25-Year Cost Comparison**		
	Scenario A Status Quo	Scenario B Moderate	Scenario C High	Scenario A Status Quo	Scenario B Moderate	Scenario C High
Total Cost	\$20,000,000	\$23,200,000	\$27,000,000	\$37,900,000	\$45,700,000	\$57,900,000
Average Annual Cost (\$ per year)	\$2,000,000	\$2,320,000	\$2,700,000	\$1,500,000	\$1,800,000	\$2,300,000
Anticipated Annual Average Funding (\$ per year)	\$2,000,000	\$2,000,000	\$2,000,000	\$1,500,000	\$1,500,000	\$1,500,000
Average Annual Gap (\$ per year)	-	\$320,000	\$710,000	-	\$310,000	\$800,000
Average Annual Gap (% increase from Status Quo)	-	+16%	+35%	-	+21%	+53%

*Costs in 2024 dollars and rounded

**It is anticipated that 25-year costs of all Scenarios are under-estimated because rehabilitation and restoration are not known and require condition assessments to be identified in the short term.

It is recommended that the Town proceed with Scenario B, because it includes a moderate program of condition assessment, which will enable the Town to determine whether asset lifecycle activities should be reduced or expanded in the future.

To fund Scenario B, the Town may:

- Seek additional revenues through taxation or grants.
- Re-allocate funds from other programs (this may result in reduced levels of service in other programs).

Next Steps and Continuous Improvement: The NCAMP summarizes the next steps including improving future iterations of the NCAMP and monitoring the NCAMP implementation progress. Key recommendations include:

- Developing and implement a condition assessment strategy for all natural asset classes. As part of strategy, establish condition scoring criteria.
- Establishing land classifications that will be applied consistently to assets in all Town documents, including the Corporate AMP and the Parks and Recreation Master Plan.
- Continuing the initiative to implement a computerized work order management system, which will be used to track maintenance and repair activities and costs.
- Implementing procedures to update the Town land inventory, with appropriate notifications on new park openings or Town acquisitions of natural assets.
- Building on the initial risk assessment for natural assets to further inform and prioritize risk mitigation actions.

It is also recommended that the Town continue or expand its existing strategies to support Town's natural asset services, including the following:

- Continuing to seek alternative ways to increase natural area asset capacity for its residents, for example, through maintenance agreements with external parties similar to the Town's existing agreements with the Duck's Unlimited property and Sheppard's Bush Conservation Area.
- Remaining open to opportunities to re-purpose existing properties or to acquire natural areas that become available.
- Maintaining existing partnerships with organizations that fund planting of trees in natural areas and seek additional partnership opportunities.
- Continuing the volunteer program for removal of invasive plant species on Town lands while considering expanding.

Plan review and monitoring follow O. Reg. 588/17 with a 5-year plan update and annual review.

The NCAMP is to be updated every five years to ensure it reports an updated snapshot of the Town's asset portfolio and its associated value, age, and condition. It will ensure that the Town has an updated 10-year outlook including service levels, costs of the associated lifecycle strategies and an assessment of any funding shortfalls.

As per O. Reg. 588/17, the Town will conduct an annual review of its progress in implementing this Plan and will discuss strategies to address any factors impeding its implementation. This will be aligned with the reporting undertaken for the Corporate AMP.

Advisory Committee Review

Report No. PDS24-025 and consultant presentation introducing the project was brought forth at the Environmental Advisory Committee (EAC) meeting on February 26th, 2024. Report No. PDS24-075 and consultant presentation of the draft NCAMP was brought forth at the EAC meeting on June 17th, 2024. The EAC is in support of the proposed plan and recommendations.

Table 3 lists the EAC comments and considerations into the NCAMP.

Table 3: EAC Comment Summary

Comments	Responses
Concerns that Scenario A (status quo) would create a situation that would be more costly to rehabilitate in the long run.	Comment received.
The need to address and increase natural asset resiliency to climate change impacts.	The NCAMP addresses these concerns and increases climate resiliency of the Town and its natural assets.
The Town should increase its tree canopy to mitigate impacts of heat island effect (heat domes) similar to what's is being measured in Montreal.	Comment received, the Town has recently adopted a 40% tree canopy as a community.
Scenario C is ideal but Scenario B (moderate) is a reasonable path.	Comment received.
Future NCAMP revisions should consider quantifying the carbon sequestration of the natural assets into the plan.	Future NCAMP revisions will consider quantifying carbon sequestration values for the natural assets. Values were estimated under the 2024 Urban Forest Study for the community, but its an evolving science.
How does the Town compare to other jurisdictions in terms of NCAMPs.	With the 2013 Town report <i>The Economic Value of Natural Capital</i> , and the development of the NCAMP,

Comments	Responses
	Aurora is well positioned compared to similar jurisdictions in integrating natural assets into its strategic planning process.
Consideration for the next NCAMP to include a gold standard target, and what that would look like. Either a Benchmark or target from other jurisdictions	Comment received and will be considered for the next NCAMP revision.
If risk is considered a linear or exponential relationship if not mitigated, and if there were any high risks identified in the plan.	Risk analysis in the area of natural capital assets is relatively new and ever evolving. Climate change risks can have a cascading impact if not mitigated, making it exponentially harder and more costly to address over time. No high risks were identified through the NCAMP, which would require immediate actions, only medium-high risks. The Scenarios B and C address those identified risks.
Considering the growth expected in Aurora, the Town could add a development charge for natural assets, considering the service value of natural assets in the community, and their economic value.	Comments received and will be considered with staff.
The Town's 2013 report <i>the Economic Valuation of Natural Capital</i> was a forward thinking document that went dormant for 10 years. The Status Quo of the NCAMP shows that the Town is not currently doing enough to protect and enhance its natural resources.	Though the NCAMP identified areas of improvement for integrating natural capital into the Town's assets planning process, others were shown to be well managed and protected, like urban trees and streams. Through the NCAMP, the 2024 Urban Forest Study and other recent strategic plans, Town staff are reviewing policy tools to better support, protect and enhance the Town's natural capital.
Will Scenario B make the Town resilient to Climate Change?	Scenarios B and C more aggressively address rehabilitation, monitoring and maintenance for natural area assets, thus increasing the resiliency.
Overall Committee support towards the NCAMP and support for the Scenario B being proposed in the plan going forward.	Comment received.
Will stewardship plans be included under the NCAMP?	The NCAMP includes asset management strategies for natural areas, including restoration, renewal, maintenance and condition assessment, while also managing risk and financial implications.

Legal Considerations

O. Reg. 588/17 requires all municipalities in Ontario to have a comprehensive asset management plan that identifies current LOS in place for all municipal infrastructure assets by July 1st, 2024, and a plan that includes proposed LOS by July 1st, 2025.

Financial Implications

Should the recommended Scenario B and its proposed levels of service be endorsed, this plan's total cost is estimated to be \$23.2 and 45.7 million over the next 10 and 25 years, respectively. It is estimated that this scenario will result in an average annual funding gap of \$320,000, which represents an equivalent tax rate increase of 0.52 percent that may be phased-in over a defined period. Staff will strive to minimize the financial impact of this plan by pursuing grant revenue opportunities.

Finance will present to Council in the fall, a comprehensive funding strategy which will consider both the Asset Management Plan and Natural Capital Asset Management Plan identified funding requirements.

Communications Considerations

In accordance with the requirements of O. Reg. 588/17, the NCAMP will be posted on the Town's website, along with related background documents for the public to access.

Climate Change Considerations

The NCAMP protects and enhances natural assets which play an important role in carbon sequestration, the process of capturing and absorbing greenhouse gas emissions (GHG) from our atmosphere. Most healthy forests have a positive carbon balance - they absorb more GHGs from the atmosphere than they emit. However, when a severe natural disturbance occurs (e.g. insects, wildfire, etc.) that causes trees to die, they shift from being a carbon sink to a carbon source. Many forested areas across Ontario have been impacted by these types of natural disturbances as well as disturbances related to human activity (e.g. mining, development, road construction, etc.).

The NCAMP increases the Town's climate resiliency, by protecting and enhancing the Town's natural assets. Natural assets are seen as effective solutions to deal with certain infrastructure and climate change related challenges and provide many benefits including reduction of urban heat island effects, flood and erosion risk reduction, with a changing climate. The recommendations outlined in the NCAMP improve the Town's ability to adapt to a changing climate through the protection and enhancement of the Town's natural capital, an essential solution to climate change.

Link to Strategic Plan

This plan supports the Strategic Plan goal of supporting environmental stewardship and sustainability through the promotion and advancement green initiatives and the encouragement of stewardship of Aurora's natural resources.

Alternative(s) to the Recommendation

None.

Conclusions

Natural assets in the Town are fundamental to social, economic, public, and environmental health, and the resilience of the Town to climate change, urbanization, and invasive stressors. The value of the services they provide increases exponentially as natural assets grow and thrive.

Natural capital assets are becoming more at risk of endangerment and identified as key assets in mitigating climate change and adaptation plans.

The NCAMP creates a roadmap to achieving a sustained long-term funding stream for supporting the Town's natural capital and improving the management of the asset. Outcomes from the plan support divisional efforts in the conservation and protection of the Town's natural assets through municipal best practices and meet the Town's requirements under O. Reg. 588/17.

Attachments

Attachment 1 – Final Draft Natural Capital Asset Management Plan (NCAMP)

Attachment 2 – NCAMP Presentation Slides

Previous Reports

None

Pre-submission Review

Agenda Management Team review on June 12, 2024

Approvals

Approved by Marco Ramunno, Director, Planning and Development Services

Approved by Doug Nadorozny, Chief Administrative Officer