Clean Air Partnership

Webinar Proceedings

Climate Integration into Urban Forestry and Stormwater Plans,

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Five main leading practices that incorporate climate change in <u>Urban Forestry Management</u> Plans are:

- **Natural capital valuation** is a key process that involves assessing the monetary value of natural assets like trees. Recognizing the value of the urban forest as a natural capital asset is essential for their protection. One tool that aids in this assessment is <u>i-Tree Tools</u>, led by the USDA Forest Service. The <u>Town of Ajax's Urban Forest Study, 2023</u>, is a prime example of this tool's practical application, as it allowed Ajax to derive various monetary values regarding the services provided by natural capital.

- **Risk assessment** brings climate and urban forestry synergy, especially for municipalities with an adaptation plan. Municipal planning for resilience focuses on future climate conditions, whereas forest management plans often embed a risk assessment on the trees under current conditions. There is an opportunity to bring those two solutions together, especially knowing that tree assets, if managed and maintained well, increase value over time and, therefore, can support the business case for urban forestry efforts.

- Addressing **Urban Heat Islands** through urban forestry is a powerful strategy that creates resiliency against more frequent extreme heat events. By strategically planting trees in high-risk areas identified through a prioritization index, municipalities can effectively combat heat islands. Peel Region, in collaboration with local municipalities and Conservation Authorities, has developed and uses the <u>Tree Planting Prioritization Index</u>, a GIS tool that allows for more informed decisions regarding tree planting and prioritizes areas, especially for citizens with lower socioeconomic well-being. The City of Guelph is also utilizing this tool.

- **Urban Canopy Cover**. Construction and maintenance, species migration, increased native species, land conservation, and connected natural heritage systems are prominent actions in climate change plans, and this relates to both urban forestry and stormwater and flood risk management.

  Most urban forest and climate plans set targets for urban canopy cover expansion, but more funding is needed to maintain the existing canopy. It's an issue of both quality and quantity. Protecting the existing canopy via private tree canopy by-law is essential in assuring mature trees are part of it, as they provide the greatest co-benefits.

  Urban forest species assembly will be an important consideration in the face of ongoing climate change, thus balancing the use of native species with more resilient species.

Land conservation and connected landscapes help reduce some climate risk exposures. Trees are one of the only assets in the community that actually increase in value over time, so incorporating that into the business case can help drive a nature-based solution.

Note: Municipalities can explore procuring LIDAR data jointly with their neighbouring municipalities for their urban tree inventories

- **Equity** in climate risks and urban canopy concerns heat exposure and the importance of urban trees and access to green space in protecting against the urban heat island effect, which most commonly affects low-income neighbourhoods and vulnerable populations. There are tools to help identify who has access to the urban treescape. For example, the city of Toronto uses the tree equity score analyzer (TESA) tool, developed by the non-profit organization American Forests, which produces scores ranging from zero to 100 to represent the levels of tree equity at the community level. The lower the score, the greater the need for investment.

Four Best practices highlighted during the discussions:

- Engaging forestry and climate change staff early in the planning stages of updating urban forest inventories/plans or climate plans and considering social vulnerability and future climate conditions.

- Public-private partnerships are the key to successfully expanding urban canopy cover while minimizing municipal efforts in maintaining assets and working on private properties, as this poses legal challenges.

- Conducting a climate exposure/ vulnerability/ risk assessment on existing urban tree canopy cover to identify priority areas is important to overcome limited resources and, once opportunity and funding are available, tackle actions and areas that are most in need.

- Municipalities can maintain a live tree inventory. If this is beyond the scope, tree inventory must be updated every 4-8 years.

Four leading practices that incorporate climate change in <u>Stormwater Management</u> Plans are:

- **Green Infrastructure (GI)**

Green infrastructure in urban streets complements traditional piped water drainage systems. Vegetation, soils, and natural processes capture and infiltrate or evaporate water before it enters the piped system. Green infrastructure can help reduce flooding and water pollution by absorbing and filtering stormwater. It simultaneously provides natural relief to the built environment, improves the street aesthetic, and delivers benefits to the community. TRCA's Sustainable Neighbourhood Action Program (SNAP) engages private and public landowners to co-design and implement green infrastructure projects that build neighbourhood resiliency. Examples include San Romanoway Towers Revival, Bramalea, and Brampton's County Court neighbourhood.

- **Low Impact Development (LID)**

Low-impact development is an innovative approach to urban planning and development that aims to reduce stormwater impacts by collecting and treating runoff as close to its source as possible, minimizing the environmental impact of human activities on natural resources. Best management practices include retention ponds, permeable pavement, and green roofs. The CAP's LID Briefing Note provides more information on benefits and municipal examples.

- **Climate Modelling and IDF curves**

Stormwater management infrastructure can be designed to mitigate potential climate change impacts by considering the material effects of climate change, such as how increased rainfall and heightened flooding risk may affect these systems. For example, stormwater management system capacities can be modelled using intensity duration frequency (IDF) curves to assess if they can manage predicted water flows. The Region of Peel's updated Stormwater Design Criteria will be applied to the Region's stormwater infrastructure. The Region has also updated its rainfall intensity-duration frequency (IDF) curves to better account for changing precipitation patterns with climate change. Richmond Hill has also updated its Stormwater Design Standards and IDF curves to reflect future climate change scenarios and predict potential impacts of climate change.

Additional Resources:

- Peel Region Climate Change Vulnerability Assessment of Natural Systems: climateconnections.ca/app/uploads/2012/03/Final-Natural-Systems-VA.pdf
- TRCA's Nature-Based Climate Solutions Siting Tool: https://trca.ca/nature-based-climate-solutions-siting-tool/
- Ajax Natural Capita Climate Resiliency Work highlighted in a previous CAC webinar that walks through the methodology: https://council.cleanairpartnership.org/wp-content/uploads/2019/03/6_Schofield_TownOfAjaxClimateChangeStudy.pdI
- A model/blueprint for municipalities collaborating on stormwater management: https://lsrca.on.ca/index.php/home/a-new-way-to-manage-stormwater/

Next steps:

- Delphi is currently exploring carbon credits for planting agencies in the urban forest realm, so we may have some content in the fall that we could share.
- Richmond Hill to share model for IDF curve via CAC webinar
- Explore considering biomass (wood waste) into biosource.
- CAP is working on a Climate Integration Consultation Guide and will hold meetings with
  - climate staff and transportation staff on consultation on climate change integration in transportation plans
  - climate staff, asset management staff and others on consultation on climate change integration in asset management