

The Time Is Ripe

New financial tools for the City of
Toronto's Parkland Dedication Rate

By: Jean-François Obregón Murillo

Supervised by: Professor Nina-Marie Lister

Second Reader: Jeremy Guth

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THE TIME IS RIPE: NEW FINANCIAL TOOLS FOR THE CITY OF TORONTO'S PARKLAND DEDICATION RATE

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Abstract

Developments in Ontario municipalities convey parkland under Section 42 of the Planning Act. Cash-in-lieu is contributed for parkland acquisitions when parkland cannot be conveyed. The City of Toronto had amassed \$237,620,212 in cash-in-lieu reserve funds as of December 31, 2019. Complex spending rules hamper the use of existing funds. Municipal officials estimate that by 2034 there will be 25 m² of parkland per person in Toronto compared with 28 m² in 2016. Washington, D.C. has a green space standard of 38 m² per person. The Nature Conservancy of Canada and Rally Assets estimates an annual national biodiversity funding gap of CAD 19.5-26 billion. The use of new financial tools for biodiversity conservation is catching on in the financial and philanthropic sectors. This MRP recommends amending existing rules to facilitate the use of cash-in-lieu reserve funds, to pursue new financial tools to acquire parkland, and to convene stakeholders across sectors.

Keywords: biodiversity conservation, parkland acquisition, urban biodiversity, municipal finance, parks planning, conservation finance, Ontario, Planning Act, Indigenous, equity, Toronto

Acknowledgements

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Thank you to Prof. Nina-Marie Lister for providing me with this topic as the subject of a research assistance position in May 2021. She identified a problem in the City of Toronto with the current process in using existing reserve funds for parkland acquisition. That problem has been revealed in my primary and secondary research. Thank you to Jeremy Guth for ideas on how existing reserve funds can be used in novel ways to increase parkland acquisition. He has also been an important sounding board during this project and vital champion of the work. Geoffrey Burt co-funded the research assistance position through the Consecon Foundation in May 2021 and for committing to supporting an in-person event convening stakeholders in May 2022. I am grateful for his support. Jennifer Kowalski, a former City of Toronto Parks, Forestry & Recreation employee and a sessional instructor at Toronto Metropolitan University (Formerly Ryerson University), made me see the barriers that exist for using current reserve funds at the City of Toronto towards parkland acquisition. Her contributions were important at a vital early stage of this project in summer 2021. I am grateful to my parents for their open-mindedness, unflinching support as well as provision of physical space for completing this project.

Contact

Jean-François Obregón Murillo
Vaughan, ON
www.urbanhulk.ca
[theurbanhulk\[at\]gmail.com](mailto:theurbanhulk[at]gmail.com)
[@theurbanhulk](https://www.instagram.com/theurbanhulk)

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Executive Summary

Parks have been getting more attention during the COVID-19 pandemic as many sought refuge in green spaces during lockdowns and restrictions. Nature's benefits are being recognized by science and finance. The June 2021 G7 Summit recognized the importance of addressing biodiversity loss and committed to increasing finance for nature-based solutions (NBS) by 2025.

Section 42 of the Planning Act stipulates that developers must either give land for parks to a municipality or provide cash-in-lieu (CIL) for their projects. In the City of Toronto, CIL generated from S. 42 is apportioned into reserve funds, however its expenditure is inhibited by complex rules. The City estimates that by 2034 there will be 25 m² of parkland per person in Toronto compared with 28 m² in 2016. Greater London and Washington, D.C. respectively have green space standards of 40 m² per person and 38 m² per person. Toronto lacks such standards. **Municipal staff reported in 2019 an uncommitted balance of \$221,899,012 that can be used for parkland acquisitions. That would be 8.2% of the City of Toronto's Parks, Forestry & Recreation's \$2.7 billion 2022-2031 10-Year Capital Plan.**

Phase I occurred between May-July 2021 with 21 interviews conducted with government, financial, real estate and NGO representatives from Canada, Costa Rica, the U.K. and the U.S. The outcome was the Time is Ripe report in November 2021 detailing over 25 financial tools. Phase II ran from October 2021 to March 2022 with six formal interviews conducted with real estate, government and NGO representatives. The research questions during Phase II shifted from maximizing biodiversity conservation and access to equity-seeking groups through the parkland dedication rate to accomplishing this with the cash-in-lieu allocation policy.

The Nature Conservancy of Canada and Rally Assets estimates a national biodiversity funding gap of USD 15-20 billion (CAD 19.5-26 billion) annually. (2020) **We estimate that Toronto has an annual funding gap of USD 1.16-1.56 billion (CAD 1.51-2.03 billion) to address biodiversity. [1]** The City of Toronto can issue \$1 billion in debt per year. **There are \$749 million in withdrawals under its 10-Year Capital Budget (2022-2031), which can be partly used for parkland acquisition.** Toronto must look beyond its existing reserves for parkland acquisition to address the biodiversity funding gap.

Highlighted tools that can be used in addition to S.42 include:

- **Resilience Bonds:** Resilience bonds link insurance premia to resilience projects to monetize avoided losses through a rebate structure. (re:focus, 2019) The "resilience rebate" can fund risk reduction projects, e.g. NBS or parkland acquisition.
- **Environmental impact bonds (EIBs):** A pay-for-performance tool, where partners address the financing gap between government and philanthropy. The USD 50 million Black Rhino Conservation Performance Bond has targets to increase this species' numbers.
- **Parametric Insurance:** Designed to payout when a pre-defined event occurs, this product can fund restoration of natural infrastructure. The Municipal Natural Assets Initiative, the Insurance Bureau of Canada and Swiss Re are working on a pilot project.

¹ Assumed \$ 1.30 to USD 1 exchange rate in mid-November 2020. We accounted for the city's share of Canada's population (7.75%)

- **Green Bonds:** The City of Toronto already has its Green Bond Debenture Framework. Using this mechanism for parkland acquisition is worth pursuing.
- **Stormwater Charges:** Proceeds can be used to acquire parkland with stormwater management functions.

To implement these tools, these gaps must be addressed: equity, financial literacy among policymakers and scientists, and biodiversity literacy among investors. Potential partners to improve parkland acquisition are: City of Toronto Indigenous Affairs Office, Mississaugas of the Credit First Nation, Greenbelt Foundation and Toronto Region Conservation Authority. Other partners include members from the financial, insurance and real estate industries.

We have made numerous recommendations and are highlighting the following:

- **Remove barriers to parkland acquisition.** This process can be accelerated if PFR adopted management practices from city or provincial agencies or crown corporations.
- **Amend the cash-in-lieu allocation policy.** The City can free up reserve fund money towards area with the greatest need for parkland acquisition.
- **Create a Green Urban Space Bond.** If we took the Parkland Acquisition Reserve Funds received in 2019 of \$31,186,033 and used it to back a bond issuance, the City could borrow \$623.7 million and pay a 5% annual coupon. The bond could be used to acquire green space at the appropriate scale to increase biodiversity conservation.
- **Conduct a sludge audit of the use of cash-in-lieu funds for parkland acquisition.** Sludge is the paperwork that cost time and money, depriving access to services. The sludge in the parkland acquisition process are the complex rules for using existing reserve funds.
- **Engage the emerging parks constituency.** Two elections will occur in 2022 and a new alternative rate must be passed by Council by September 2022. Thus, City staff must work with post-secondary institutions, NGOs, foundations and citizens on this issue.
- **Budget for post-parkland acquisition costs.** Parks staff across Canada underscored the importance of budgeting for the operating and maintenance costs of new parks.
- **Explore Indigenous partnerships.** Indigenous Protected and Conserved Areas (IPCAs) represent a novel approach to biodiversity conservation with potential application to the procurement and stewardship of urban parkland.
- **Prepare for natural disasters with novel insurance products.** Parametric insurance and resilience bonds can make infrastructure more resilient to increasing flood risks.

Lastly, our identified next steps are:

- **Consider a public awareness campaign.** Raising the profile of increasing parkland in Toronto in the provincial and municipal elections could make this issue a greater priority.
- **Convening financial stakeholders.** I am organizing an event in May 2022 that would convene municipal officials, investors and civil society on how the existing parkland acquisition process can be accelerated and new financial tools used.

Public support for parks is high. Many factors, e.g. finance, science, the City's reserve funds, are lining up in favour of parkland acquisition. A high-functioning ecosystem needs rich biodiversity to thrive. As an interviewee put it: "If you have a big pot of money, you have the resources to deliver." This report provides a rich list of financial tools to help acquire parkland. If the City does not use these resources now then, when?

Introduction

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Parks have been getting more attention than ever thanks to the COVID-19 global pandemic. More and more Canadians have spent time in parks as they coped with lockdowns and other restrictions mobility since March 2020. International travel restrictions have led to increased camping at Parks Canada and Ontario Parks sites, which had about 13 million visitors in 2020. (Cheung, 2021) The benefits of nature are also increasingly documented in science and finance. A 2015 literature review published in the International Journal of Wellbeing concluded that there is evidence suggesting that nature interventions have a positive impact on wellbeing. The June 2021 G7 Summit communiqué recognized the importance of addressing biodiversity loss and committed to increasing finance for nature-based solutions (NBS) by 2025. (G7, 2021) There is global momentum around integrating nature into our lives and to better account for it in our economy.

“Amsterdam is known for its canals. Why can’t Toronto be known for its ravines?”, asks Philip Jessup, former Executive Director of The Atmospheric Fund. (P.Communication, 2021) Indeed, the City of Toronto (the City) has an extensive ravine system and parks that provide refuge for ecologically significant flora and fauna. (Figure 1) Its large parks are the legacy of Hurricane Hazel in 1954 and the establishment of conservation authorities with their until recently-modified powers to control development and manage flood risks. However, the City of Toronto’s Parkland Strategy Refresh projects a decrease in parkland per person provisions in the future. By 2034, there will be 25 m² of parkland per person in Toronto compared with 28 m² in 2016. (City of Toronto, 2022a) Toronto does not have a standard for green space. Meanwhile, Greater London and Washington, D.C. respectively have green space standards of 40 m² per person and 38 m² per person. (Maryanti et al, 2016)

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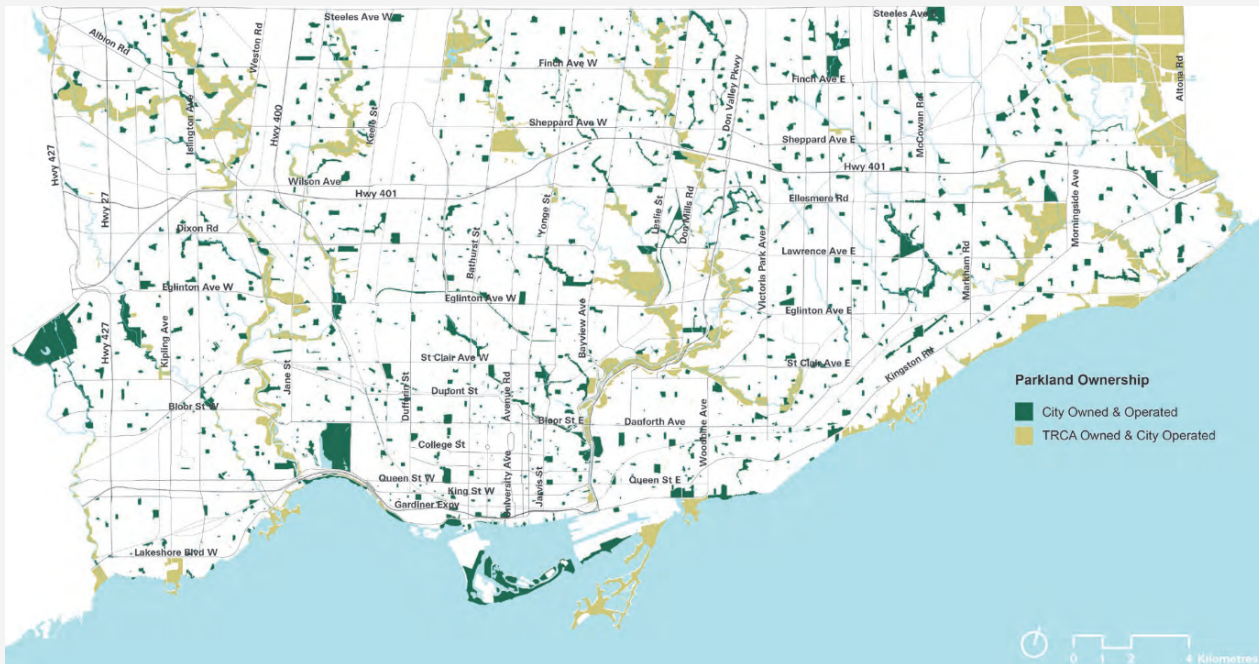
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Jean-François Obregón Murillo

**Toronto Metropolitan
University School of Urban and
Regional Planning**

Figure 1 – Map of Toronto Parks System



Source: City of Toronto, 2019

While parkland acquisition alone will not address global biodiversity needs, it will contribute significantly to the quality of life for all Toronto residents – human and other. Furthermore, it will provide an outsized contribution to Canada commitment to protect 485,500 km² of land – roughly the size of Yukon – to meet its Convention on Biodiversity Targets (CBD) (AKA Aichi Targets) by bringing of awareness and support for the need to protect biodiversity to the most populous city in the country.

Section 42 of the Planning Act stipulates that real estate developers must either convey parkland or provide cash-in-lieu (CIL) for their projects. This mechanism has produced community-scale parks in boroughs like Scarborough. (P. Communication, 2021) With dizzying real estate activity in Toronto, the CIL mechanism generated \$437,891,231 between 2016 and 2019. (City of Toronto Parks Forestry and Recreation, 2021c) Moreover, such a powerful tool could be better leveraged for parkland acquisition purposes.

“A lot of Torontonians do not know about our green spaces. It is very important that we know that we have them [green spaces] there so that we invest in them and maintain them.” - City of Toronto Parks, Forestry and Recreation staff member

City staff reported the uncommitted balance in the Parkland Acquisition Reserve Funds and Alternative Parkland Dedication Reserve Fund totaled \$221,899,012 as of December 31, 2019.[2] The later is when Section 42 CIL in the Alternative Parkland Dedication Reserve Fund and includes funds for parkland acquisition.

This also known as the Above 5% metric, which applies in areas with an identified parkland need. Cash-in-lieu payments Above 5% are used for parkland acquisition in the vicinity of a development. Section 42 of the Planning Act stipulates that developers must either convey parkland or provide cash-in-lieu (CIL) for their projects. In the City of Toronto, CIL generated from S. 42 is apportioned into reserve funds, however its expenditure is inhibited by complex regulation. Meanwhile, the City estimates that by 2034, there will be 25 m² of parkland per person in Toronto compared with 28 m² in 2016. (City of Toronto, 2022a) **Most developments in Toronto will make a contribution of 10% of the site's land value in cash-in-lieu. Therefore, the amount between 5-10% of is considered "Above 5%".** For example, a development in the Annex contributes 10% of the site's value towards cash-in-lieu. The first 5% of that contribution is placed into parkland acquisition and parkland dedication funds. The Above 5% amount is used to acquire or develop parkland in the vicinity of that development since this neighbourhood is considered parkland deficient. (Mitani, 2021a)

The existing CIL mechanism for acquisition and development could be used for biodiversity, but it is not. This is a public policy failure as biodiversity should be a goal in the Parkland Strategy and there are unallocated funds that we could be using today. The focus of this MRP will be on how the CIL mechanism can be reformed and improved upon from its current iteration.

If Toronto wants to make big moves to address biodiversity then, it needs funding tools beyond parkland acquisition, dedication and the CIL mechanism. This report features a background on the planning context, parkland acquisition funding, literature review, a survey of private and public financial tools that can be applied towards parkland acquisition, an analysis of themes heard during the interview process, an overview of potential partners for parkland acquisition, recommendations, next steps and gaps. Like a rich ecosystem, there is a diverse array of financial tools that can be used towards parkland acquisition. We are at a moment in time which calls for both increased social equity and a better natural environment, and gains can be made on both fronts if we are ready to seize the opportunity.

2 To arrive at this amount, I subtracted the uncommitted balance in 2019 of parkland development (\$15,721,200) from the total uncommitted balance amount of \$237,620,212. I have assumed that the parkland development amount would be used for parkland acquisition. This is despite City of Toronto Council having the ability to redirect cash-in-lieu reserve funds intended parkland development towards parkland acquisition.

Research Questions

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In Phase I, this project addressed three key questions: 1) How to make a planning argument to encourage parkland acquisition funds to be fully used and identify where there may be opportunities to unlock these and deploy for BDC goals under the Aichi Targets, 2) Catalogue and investigate new opportunities for parkland acquisition funding, and 3) Explore new opportunities to partner with Indigenous community members. For the first goal, S.42 is currently not being used for biodiversity and we need to consider additional tools to achieve this end. Perhaps this is worth raising in the upcoming provincial spring election campaign.

In Phase II, the MRP addressed three research questions: a) how a new parkland dedication rate can be set that maximizes biodiversity conservation and parks' access for equity-seeking groups; b) how barriers can be overcome at the City of Toronto for using existing funds and accelerating its use towards funding parkland acquisition; and, c) how can new financial tools be used towards parkland acquisition.

As Phase II of the project evolved and I gained responses from interviewees, I pivoted my focus to a new cash-in-lieu allocation policy instead of the Alternative Parkland Dedication rate. A new version of the latter will be brought to Toronto City Council in spring 2022. However, it is unclear when the cash-in-lieu allocation policy will be updated and there is an opportunity to raise attention on this. The cash-in-lieu allocation policy has been my true focus from the beginning.

Methods

The research was conducted over two phases between late-May 2021 to early-March 2022. During this period, 59 individuals and organizations were contacted for interviews at financial institutions, municipal governments, non-profit organizations and consultancies. In total, 31 responses were received and 27 formal interviews occurred.

Phase I occurred between late-May and late-July 2021. During this phase, I contacted 35 individuals across the financial, government, non-profit and consulting sectors in Canada, Costa Rica, the U.K. and the U.S. Interviews were conducted with 21 individuals. Participants were recruited using snowball sampling of targeted experts. (Bhattacharjee, 2012) Respondents were interviewed via phone or videoconference

and were asked between four to eight questions in a semi-structured format about biodiversity conservation and, when applicable, conservation finance. Notes were taken during these interviews, which were used for the report entitled "Time is Ripe: A survey of financing tools to enable urban biodiversity conservation finance in the City of Toronto" released on November 15, 2021. Phase I was co-funded by Prof. Nina-Marie Lister's Ecological Design Lab and The Consecon Foundation through a 210-hour internship in summer 2021. The interviewees were found through our networks, snowballing and cold emailing.

The scope of the project in Phase I was to catalogue new financial tools for biodiversity conservation that are being used globally, provide background on the City of Toronto's current parkland dedication rate and cash-in-lieu allocation policy, identify gaps with the aforementioned policies, identify stakeholders to work with for instituting new financial tools and improved existing processes, and make recommendations for the City of Toronto to improve its process.

I conducted secondary research by reviewing academic literature and grey literature in Phase I. There is limited research on financial tools for parkland dedication. Therefore, we sought literature with focuses on conservation finance and nature-based solutions (NBS) with the assumption that the insights and examples would be applicable to parkland dedication. Timely academic literature on conservation finance is scant. However, there is increasing interest in the financial sector with numerous reports in Canada, the U.S. and Europe published in recent months. The run-up to the Glasgow Climate Change Conference in fall 2021 was observed to motivate industry activity.

Phase II ran from early-October 2021 to early-March 2022. During this phase, I contacted 26 individuals and organizations in real estate (17), municipal government (5), consultancies (2) and non-profit (2) sectors in Canada. The focus was exclusively on individuals and organizations operating in the City of Toronto. Responses were received from 8 individuals and formal interviews were conducted with 6 of the respondents. The interviewees were three municipal employees, two real estate sector representatives and one non-profit sector professional. Informal interviews occurred with several representatives in municipal government and environmental non-profits.

Interviewees were asked to sign a consent agreement to participate in the MRP. The interviews were based on a semi-structured questionnaire ranging from 7 to 13 questions depending on which sector the participant worked in. There was a refinement process to the questions based on feedback from Prof. Lister. The length of the questionnaire also varied from iterations due to interviewee feedback as well as observing what worked and did not work in the process. This is common in the research process. (Bickman & Rog, 2009) Questions were categorized under: parkland

dedication rate, using existing funds for biodiversity and equity-deserving groups in the parkland acquisition process, and the use of new financial tools.

Phase II's focused approach built off the contacts and insights gained from Phase I. Thus, specific Phase I interviewees were approached in Phase II thanks to the mutual benefit to their day-to-day work and to the MRP. These interviews were obtained through my networks, in-person events, snowballing and cold emailing.

Initially, the Phase II questionnaire was structured to include improvements to the Alternative Parkland Dedication Rate and to the cash-in-lieu (CIL) mechanism. The former is being reviewed and a new rate will be brought to Toronto City Council in March 2022. A new by-law must be enacted by September 18, 2022. An interview with a senior manager at the City of Toronto PFR helped me understand that the Alternative Parkland Dedication Rate was different from the cash-in-lieu allocation policy and that both were not being reviewed as part of the new by-law. I also realized that the City's review of the former was at such an advanced stage that the MRP might not be completed in time to influence it. I learned from that interview with the senior manager at PFR that there was no date set for updating the cash-in-lieu allocation policy but, there was an opportunity for revising it given that that rate had not kept up with higher densities in development applications. Thus, I focused on the cash-in-lieu allocation policy as this research may influence that process once the City updates it.

The interviews were recorded on Zoom videoconferences and transcribed using Otter.ai. The video and audio content are stored on a password-protected folder for 180 days. The transcripts were coded under the major themes of: new parkland dedication rate, biodiversity and equity-seeking groups, and the use of new financial tools. While reviewing the codes, I identified new themes through axial coding, where the categories and subcategories are assembled into causal relationships or hypotheses that can tentatively explain the phenomenon of interest. (Bhattacharjee, 2012) The new themes that emerged were: challenges, vision & transactions, cash-in-lieu, process, public awareness, natural capital, ward versus city-wide tensions.

Investigator Experience

Before enrolling in the MPI program, I worked for over six years at Sustainalytics, a responsible investment data provider. I researched the financial and real estate sector and assessed the environmental, social and governance (ESG) risks of major global firms. I published articles about investment funds and the circular economy, the roles of institutional investors in the deforestation in Brazil and the role for insurance companies in facilitating nature-based solutions (NBS) to reduce flood risks. I am also

the Executive Director of A Voice for Transit (AVFT), a group that advocates for transit equity in Toronto. At AVFT, I led the research and publication of two reports: a system map of power structures related to transit in Toronto and essential workers' experiences on the TTC during COVID-19. The latter required recruiting and interviewing participants using digital channels during the spring of 2021.

Policy Context Background: Parkland Acquisition and Dedication Funds

The Planning Act, Section 42 addresses conveyance of parkland purposes, which impacts how much land is set aside for parks for development as well as redevelopment projects in municipalities. (Government of Ontario, 2022) The COVID-19 Economic Recovery Act, 2020, made several additions to Section 42, which increases the amount of consultation required for Section 42-related zoning by-law changes and clarifies how compensation is set for refunds. (Bill 197, COVID-19 Economic Recovery Act, 2020, 2020) Under SS.1) Municipalities can pass by-laws to convey land for parks or other public recreational purposes for land proposed for development or redevelopment for commercial or industrial purposes (2%) and 5% in all other cases.

A trio of parkland dedication tools in the City of Toronto

Chapter 415 of the Toronto Municipal Code, Article III, Conveyance of Land for Park Purposes as a Condition of Development specifies how parkland is dedicated in three categories: 1) physical conveyance, 2) alternative rates for physical conveyance (Alternative Parkland Dedication Rate) and, 3) cash-in-lieu (CIL) rates when the other two categories cannot be met. For scenario 2, excess cash (Above 5%) is used to acquire parkland in a development vicinity. (City of Toronto, 2022d) The current Alternative Parkland Dedication Rate conveys land at the following rates: land is equal to 5% of the land to be developed or land at a rate of 0.4 hectare for each 300 dwelling units proposed if it follows the same development site size and percentage of the site size as followed in **Table 1**. If land cannot be conveyed at another site then, the alternative rate applies of 1 hectare for each 500 dwelling units (cash-in-lieu).

A 2017 City of Toronto staff review of the Alternative Parkland Dedication Rate stated that residential densities had increased 205% by project and average units per hectare by project had grown 254% since the CIL rate was approved in 2005. (City of Toronto, 2017b) The report cited the need for updating the Alternative Parkland Dedication Rate. However, there is currently no way for the City to capture the appreciation in property values for parkland dedication cash-in-lieu rates as application developments progress. The City is in the process of changing the Alternative Parkland Dedication Rate to get a new rate approved by Toronto City Council by September 18, 2022. Otherwise, the City will be unable to continue collecting cash-in-lieu payments.

The 2017 City staff review conducted a pro forma analysis of three new cash-in-lieu options: 1) an un-capped rate calibrated to parkland need, 2) a flat cap rate set city-wide, and 3) a graduated cap that adjusts to density. The analysis cited that a graduated cap can be adjusted to capture higher percentages of site values in areas with higher densities and land values. **Thus, the more expensive the property, the higher the cash-in-lieu contribution towards parkland.** The rate could also be adjusted based on whether a site was in an Avenue, a City of Toronto Official Plan designation. (City of Toronto, 2017b) The “blended cash-in-lieu rate” has three density bands: 1) 60% site value cap above 12.1 FSI and above, 2) 30% site value cap between 6.1-12 FSI, and 3) 15% site value cap for 0-6.0 FSI. (City of Toronto, 2017b) **For instance, development applications that propose a structure that 12.1 times the size (square footage) of the property or lot at ground-level. Such a development would have to pay 60% of the site’s value in cash-in-lieu.** Very high-density proposals would pay 200% over the current CIL rate. Such a density band system would echo what the Progressive Conservative government of the 1990s did when it reformed the property tax assessment system with new bands.

Table 1: The City of Toronto Alternative Parkland Dedication Rate

Development Site Size	Alternative Rate (% value of site size)
1 hectare or less	10%
1-5 hectares	15%
Over 5 hectares	20%

In scenario 3, payment is made by developers to the City based on property valuation at the time of the application. Cash-in-lieu rates are described in **Table 2**. The ranges are identical to the Alternative Parkland Dedication Rate except that they are based on site value for cash-in-lieu rates. (See **Tables 1 and 2**) **The importance of the distinction between the Alternative Parkland Dedication Rate and the cash-in-lieu rates were brought to my attention during my interview with a senior manager at the City of Toronto's Parks, Forestry & Recreation (PFR). The former is physical parkland dedication while the latter is when an applicant cannot dedicate physical parkland on a site due to various constraints, e.g. size of the lot. Thus, there is currently a limit (20%) to how much land or cash can be contributed towards parkland regardless of the size of the development proposal.**

Table 2: The City of Toronto Cash-in-lieu Rates

Development Site Size	Cash-in-lieu Rate (% value of the site)
1 hectare or less	10%
1-5 hectares	15%
Over 5 hectares	20%

S. 415-25 of the Toronto Municipal Code, Article III stipulates how cash-in-lieu funds for parkland dedication are to be allocated. **Table 3** provides a breakdown of how cash-in-lieu is allocated for contributions below the 5% rate and those above (Above 5%). S.415-25 (B) of the Toronto Municipal Code, Article III states that Community Councils may recommend to City Council that up to 100% of the 50% portion for a district can be allocated completely for that district, where those funds were generated. (City of Toronto, 2022d) This is perhaps a condition to compensate for the risk of the CIL rate's inequity to new property owners if funds are used outside of their immediate neighbourhood. **In other words, future property owners of a proposed development would be "losing out" if all of the applicant's cash-in-lieu contribution went into a general fund since the money could be used for a park that is 10 km away from the site, for instance. Thus, municipal funds can be pooled to purchase parkland in a specific district if there is a compelling biodiversity conservation argument for such a transaction in that district. As a result of this rule where up to 100% of the 50% portion for a district can be allocated in that district, identifying sympathetic councillors in priority areas for large park establishment is important for maximizing the amount of cash-in-lieu; allocation funds towards land acquisitions.** Overall, the complexity of cash-in-lieu rules makes the use of this mechanism difficult for planning practitioners to understand, much less the general public.

Table 3: Breakdown of Cash-in-lieu; Allocation (S. 415-25 of The Toronto Municipal Code, Article III)

Land Acquisition	Cash-in-lieu Allocation (5% or below)		Alternative Rate Cash-in-lieu Allocation (above 5%)
	City Wide	District	
	25% Acquire parkland throughout the City	25% Acquire parkland within the District	Acquire parkland <u>accessible to</u> the area in which the development is located
	Parkland Acquisition Reserve Funds		
Park Development	25% Develop and upgrade parks and recreation facilities throughout the City	25% Develop and upgrade parks and recreation facilities within the District	Improve parks <u>within the vicinity</u> of the development
	Parkland Development Reserve Funds		Alternative Parkland Dedication Reserve Fund (tracked by Ward)

Source: City of Toronto, 2019

The City of Toronto's PFR allocation of cash-in-lieu of parkland is guided by two major strategic plans: the Parks and Recreation Facilities Master Plan, 2019-2038 and The Parkland Strategy. The latter identifies a downward trend for parkland per person in the future. By 2034, there will be 25 m2 of parkland per person in Toronto compared with 28 m2 in 2016. (City of Toronto, 2022a) The City's cash-in-lieu of parkland dedication (under Section 42 of the Planning Act) is the main source of funding. The Parkland Acquisition Program is a recipient of capital funding. Other funding sources are: development charges, debt, donations, other divisions' contributions and funds secured under the Planning Act's Sections 37 and 45.

According to the City's 2021 Budget Notes, the cost to acquire needed parkland to serve future growth currently exceeds available funding. (City of Toronto Parks Forestry and Recreation, 2021a) The financial gap was not stated. In 2022, the City stated that it would be "extremely challenging" for parkland acquisition to keep pace with the city's population growth. (City of Toronto, 2022b) There is \$211 million budgeted over the next 10 years in the 2022 PFR Operating Budget & 2022-2031 Capital Plan. However, this amount includes the implementation of the Facilities Master Plan and the Parkland Strategy.

It can be challenging for the City to compete in the private market for parkland acquisitions, according to City officials. Nevertheless, city-wide arguments are essential to support the acquisition budget since there are city-wide benefits, e.g. tourism, tributaries, birds, addressing the needs of equity-seeking groups, etc. The operating and maintenance costs of sites are vital factors for consideration in parkland acquisition since the City is constrained by limited municipal funding options and significantly raising property taxes are politically unpopular. Thus, a lifetime costing approach, where the long-term maintenance and operating costs are included in parkland acquisition budgets is recommended.

Under its 10-Year Capital Budget and Plan (2022-2031), the City has earmarked \$749 million in withdrawals that can be partly used for parkland acquisition. (City of Toronto, 2022b) It is worth noting that this amount is not solely to be used for parkland acquisition as the funds can also be used for parkland and recreational facilities. A February 2021 City of Toronto briefing note entitled "Status of Commitments Made in Climate Emergency Declaration & Climate-Related Investments" provides broad details on PFR climate and resilience priorities. (City of Toronto Environment & Energy Division, 2021) That note estimates that PFR has 213 tax-supported projects under "Capital Projects that Contribute to Both GHG Reductions and Climate Resilience" totaling \$1.5 billion. It is unclear which projects specifically count towards the 213 amount because multiple city officials directed my inquiries towards the 2020 Budget Notes for PFR. Nevertheless, there is \$2.0 million dedicated to the Disaster Mitigation & Adaptation Fund, which includes ecosystem services and green infrastructure. (City of Toronto, 2020a)

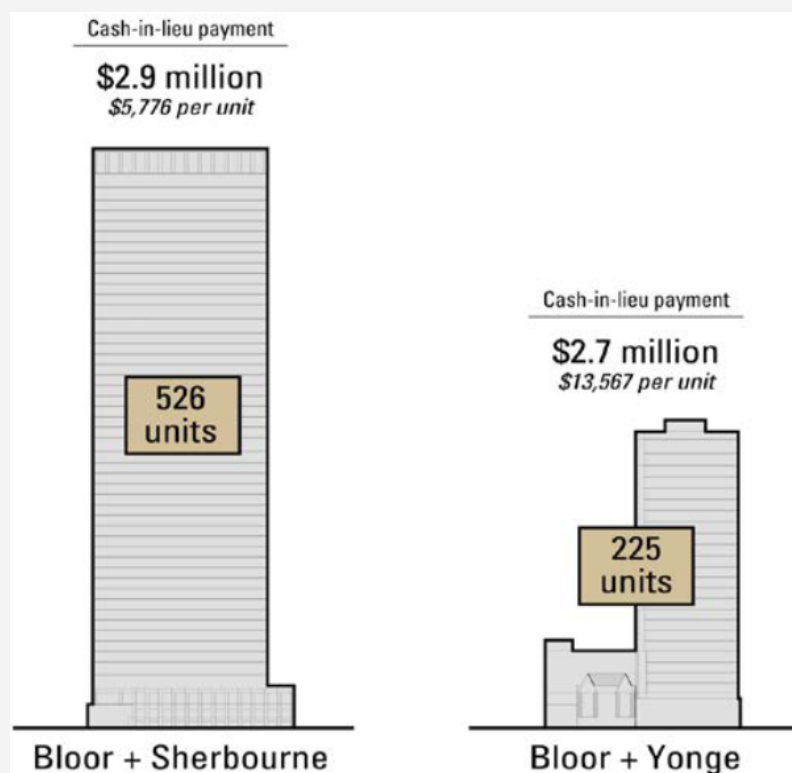
Despite the funds budgeted for PFR, it is unlikely that municipal funds currently available to acquire parkland will be enough for making major parkland acquisitions that can contribute towards enhanced biodiversity conservation. Especially, in a real estate market that shows little signs of cooling down. To overcome this obstacle, new financial tools should be considered as they can be combined with the City's existing funds. An important consideration for parkland acquisition are operations and maintenance costs, which can be considered "hidden costs". Thus, these costs need to be factored in when budgeting for major parkland acquisitions.

The Parkland Dedication Rate's Shortcomings

The City's Alternative Parkland Dedication Rate Policy does not sufficiently capture funds from high-density development as the amount is capped at 20% for lot sizes larger than 5 hectares. **This means that very high-density developments (100 storeys) can be proposed, but the size of parkland dedication is not proportional to the size of the development. It is only proportional to the size of the property. Thus, if a lot is larger than 5 hectares, only 20% of the site must be dedicated as parkland irrespective of how many residents will be added by the new development.** This is a flaw of the current policy régime, which does not capture growth-driven parkland demand from Alternative Parkland Dedication Rate and cash-in-lieu perspectives. A senior employee in the City of Toronto's Parks, Forestry & Recreation (PFR) department has stated that it is rare to have a 20% dedication. This person also said that the current rate will only ever secure small, local parks for local recreation. For example, on a condo site downtown of 2,000 m² site area, the parkland dedication at the Alternative Rate of 10% generates a parkland dedication of 200 m². (P. Communication, 2021) According to the City's Parkland Strategy, parkland per person was 28 m² in 2016. When looking at the number of condominiums being built, the parkland that the current Alternative Rate produces will lead to decreased parkland per person.

Figure 2 illustrates this with building examples both on less than 0.5 hectare sites and subject to the 10% cap.

Figure 2 – Comparison of Cash-in-lieu Payments Across Different Project Sizes



Source: City of Toronto, 2019

Spotlight: The City of Toronto's Downtown Parks and Public Realm Plan (2018)

One of the “Transformative Ideas” presented in this plan includes The Core Circle, which re-imagines the valleys, bluffs and islands encircling the downtown as a 900-hectare landscape system connecting nature to the urban fabric. Its design principles are conducive to increasing parkland acquisition and its central location could demonstrate numerous co-benefits. One of the Core Circle’s design principles gives prominence to the Indigenous histories in the landscapes that preceded Toronto’s founding and includes re-establishing relationships with Indigenous Peoples. (City of Toronto & Public Works, 2018) Importance is given to enhancing biodiversity as well as improving access to ravines. **(Figure 3a, 3b) (See Appendix 1 for a list of initiatives tied to The Core Circle)**

Figure 3a: Design Intervention for Improve Ravine Access
Figure 3b: Cottonwood Flats, Toronto



Boisé de Tequenonday opens a gradual portal for the public to enjoy convenient access to nature, Quebec City, Canada

Source: City of Toronto/Public Work



Source: Jean-François Obregón Murillo

Policy Context and Background: Status of Section 42 Reserve Funds

Since September 18, 2020, Ontario Regulation 509/20 requires annual reporting of the Planning Act, Section 42 reserve fund activity. (City of Toronto Parks Forestry and Recreation, 2021c) Specifically, the regulation requires disclosures on the details of the amounts spent for each undertaking under Section 42, and how capital costs not funded from the special account were or will be funded. From 2016 to 2019, the City received \$439,891,231 cash-in-lieu in parkland dedication payments and spent \$172,267,208 from cash-in-lieu on 707 park acquisition and development projects. (City of Toronto Parks Forestry and Recreation, 2021c) **There is a staggering \$207,460,572 in an uncommitted balance for Section 42 CIL Above 5% (AKA Alternative Parkland Dedication Reserve Fund), which can be applied for parkland acquisition with a biodiversity and social equity overlap. If you factor in the \$14,438,440 in the Parkland Acquisition Reserve Funds, the total amount that can be used for parkland acquisition reaches \$221,899,012.**

Above 5% is the cash-in-lieu amount that is between 5 to 10, 15 or 20% depending on a site size. **For instance, if a site is 4 hectares and it cannot convey physical park space then, the applicant will make a 15% cash-in-lieu contribution in accordance with the property's valuation.** The first 5% will go towards the Parkland Acquisition Reserve Funds and the Parkland Dedication Reserve Funds. The amount between 5 to 15% will go to an Alternative Parkland Dedication Reserve Fund to acquire parkland

“accessible to” the area of the development and to improve parks “within the vicinity of the development”. (City of Toronto, 2017b) In this example, 8.33% of the cash-in-lieu contribution would go towards city-wide parkland acquisitions according to the City of Toronto’s rules. **This is only 1.25% of the site’s value and does not change regardless of the size of the development that is proposed. (Table 3)** Between 2016 and 2019, \$27,709,859 was spent on parkland acquisition. (City of Toronto Parks Forestry and Recreation, 2021b)

Table 4 shows committed and uncommitted cash-in-lieu funds. The latter category is explained by numerous factors, including: time lag between when cash-in-lieu payments are received and when they can be allocated for capital purposes, the City needing to “save up” to pay full cash value for parkland purchases, rising land prices, the need for Council approval before Parkland Reserve Funds can be spent, and protracted negotiation and settlement processes for parkland acquisitions. Perhaps the most significant challenge is the City’s cash-in-lieu allocation policy – explained in **Table 4** – has a complicated formula for splitting funds into multiple reserve accounts. Developers and speculators can move faster to purchase property because transactions can be financed whereas the City cannot leverage for parkland purchases. These factors restrict the City from moving fast enough to purchase parkland in priority locations.

These obstacles can be overcome by making processes related to cash-in-lieu more nimble, which can slow the downward trend for parkland per person. Canada has a strong track record of government agencies delivery of infrastructure or social policies, e.g. Canada Pension Plan Investment Board, Infrastructure Ontario. The City can apply the business management practices used by these crown corporations and government agencies’ techniques towards a more expedient parkland acquisition process. The City can also amend its cash-in-lieu allocation policy so that it frees up reserve fund money towards areas with the greatest need for parkland acquisition.

Table 4: City of Toronto Cash-in-lieu Reserve Accounts

Table 4: Summary of Balances for all Parkland Reserve Funds as of December 31, 2019

Account	Balance in Accounts as of Dec 31, 2019	Commitments in 2020-2029 Capital Plan*	Uncommitted Balance
Section 42 CIL First 5%			
Parkland Acquisition	239,960,699	225,522,259	14,438,440
Parkland Development	118,585,012	102,863,812	15,721,200
Subtotal (First 5%)	358,545,711	328,386,071	30,159,640
Section 42 CIL Above 5%	286,423,562	78,962,990	207,460,572
Total (First & Above 5%)	644,969,273	407,349,061	237,620,212

*Commitments are as of 2020 Q3 variance report

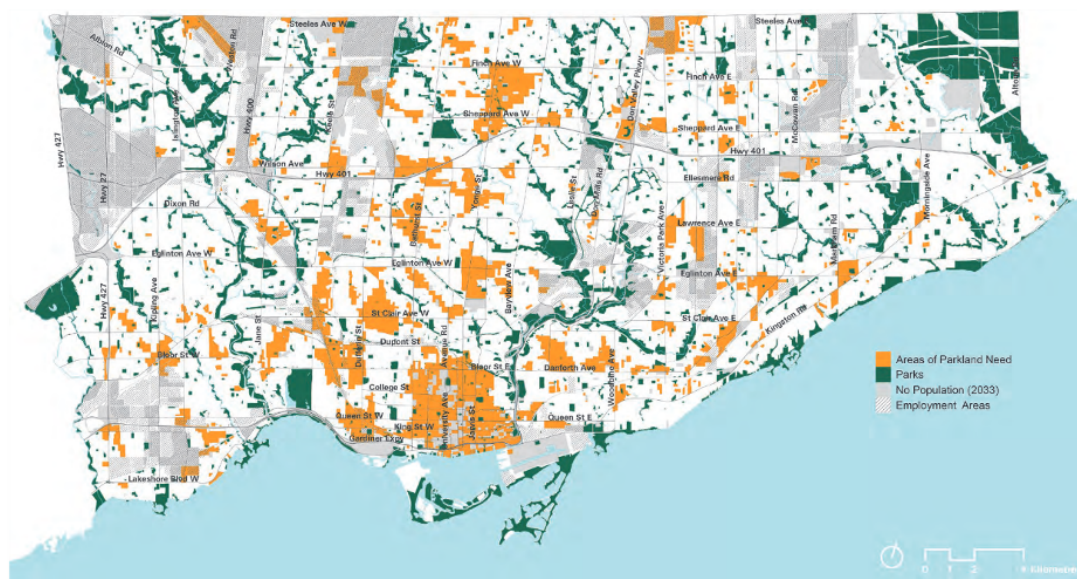
Source: City of Toronto, 2021

Table 4 shows that the combination of Uncommitted Balances under “Parkland Acquisition” and “Section 42 CIL Above 5%” total \$221,899,012 as of December 31, 2019. This amount can be used for parkland acquisitions to improve biodiversity conservation. The City’s Parkland Strategy maps out Parkland Study and Acquisition Priority Area (Figure 4) showing areas of parkland need while applying an equity lens. The City also has a checklist for parkland acquisition that includes, inter alia, opportunities for parkland acquisition that contributes to providing a full range of parks, protecting and enhancing natural features, and linking parks through trails. We strongly encourage the City to prioritize where biodiversity conservation can be maximized in its parkland transactions. For instance, there is no explicit mention of biodiversity among the criteria of the Parkland Assessment Tool that is a part of the City’s Parkland Strategy. However, whether a site is in a parkland priority area is the top criterion for the assessment. **(see Appendix 2)**

There is a growing and cross-cutting constituency of support for improving parkland dedication and increasing acquisitions in Toronto. Its make-up ranges from NGOs to foundations, post-secondary institutions, and everyday citizens. With two elections occurring in 2022, the timing is now for placing parkland dedication higher on the political agenda.

Figure 4: Parkland Study and Acquisition Priority Map

Priority areas indicate where there is low parkland provision, low park supply, high-growth, and a high percentage of low income residents.



Source: City of Toronto, 2019

Literature Review

There is emerging academic and grey literature on conservation finance, but it is rare to see an overlap with parkland acquisition or dedication as well as urban planning. An exception is Jessica Kae Erickson's 2006 master thesis exploring land acquisition and financing strategies for urban parks. (Erickson & Witten, 2006) Given the similarities between conventional conservation and urban parks, we are applying the academic and grey literature on conservation finance – of which a robust literature exists – for the purposes of parkland acquisition and dedication.

Canada has not met its Target 1 goals under the 2010 Strategic Plan for Biodiversity (AKA CBD or Aichi Targets). "By 2020, at least 17% of terrestrial areas and inland water, and 10% of marine and coastal areas of Canada are conserved through networks of protected areas and other effective area-based measures." (Burgess & Levine, 2018, pg.3) Note that the CBD now refers to Target 1 as Target 11. (Convention on Biological Diversity, n.d.) Canada is currently at 12% and the federal government has committed to conserving 25% of the country's land by 2025. (Government of Canada, 2021a) Cities and urban parks are a visible and tangible way that could help Canada achieve this international commitment. Urban parks have a cultural value to Target 1 and Target 11 as they bring a tangible benefit to densely populated regions of Canada. As well, urban areas tend to share the same landscape as the areas with the highest biodiversity in the country. Canada needs to protect an additional 485,500 km² of land to meet its Aichi Targets – about the size of Yukon. (Kosciolek et al., 2020; Statistics Canada, 2019)

Municipal officials estimate that by 2034 there will be 25 m² of parkland per person in Toronto compared with 28 m² in 2016. (City of Toronto, 2022a) However, there are no published standards for green space per person in the City of Toronto. The World Health Organization has recommended the availability of urban green space to be a minimum of 9 m² of green space per person with an ideal value being 50 m² per person. (Maryanti et al., 2016) Minneapolis and Los Angeles respectively have 20 m² per person and 48 m² per person. (Russo & Cirella, 2018)

In his 2015 "World Park" article, Richard Weller argues for large, connected landscapes via intercontinental trails as the only way to ensure biodiversity targets are met. Weller states that large, linear landscapes called "greenways" that traverse urban areas as trails can help to augment connections between fragments of land. (Weller, 2015) **Figure 5** shows what these connections could look like. This lens can be applied to where the City of Toronto chooses to invest in parkland acquisitions. The Meadoway may offer an influential case in point. "Greenways" are also known as "ecological networks" and "wildlife corridors". (Weller, 2015)



Source: LA+Wild, 2015

Green bonds, ecotourism fees, debt restructuring and carbon offsets are considered relevant conservation finance tools. (Burgess & Levine, 2018) A significant barrier to green bonds is the difficulty of generating cash flows from land conservation projects. (DuPont et al., 2015) This point is echoed by Earth Security in a 2021 report on making nature-based solutions (NBS) investable. (Earth Security, 2021) The Climate Bonds Initiative has not yet published an Agriculture and Land Use State of the Market. However, Land Use accounted for 5% of green bonds in Canada in 2020. (Climate Bonds Initiative, 2021) It is a positive indicator that Agriculture and Land Use, where parkland dedication would be categorized, saw 59% growth in green bond issuances in 2020. (Harrison & Muething, 2021) As well, 51% of issuances came from sovereigns, where the Canadian federal government could channel funds through a green bond. (Harrison & Muething, 2021) Conversations with industry professionals also validated that Land Use or NBS are a minority of the projects being evaluated for their environmental credentials.

Arjaliès and Gibassier, 2022, make an important contribution in exploring the financialization of nature. Financialization is defined as processes that involve introducing a financial rationale into fields previously outside the economic sphere. (Arjaliès & Gibassier, 2022) In their article exploring a conservation organization's attempt at issuing a conservation impact bond (CIB), Arjaliès and Gibassier unpack the distinction between financialization processes and projects. The former refers to the implementation of financialization project while the latter refers to the individual or collaborative enterprise planned and undertaken to achieve financialization. (Arjaliès & Gibassier, 2022)

In implementing financialization, Arjaliès and Gibassier note the tension that exists between those who adopted the practices and conventionalists. Such a challenge can emerge at the City of Toronto's PFR, where long-time employees will resist the usage of new financial tools for acquiring parkland. Arjaliès and Gibassier also note that the CIB failed due to lack of investor interest in the mountain chicken frog compared to iconic species like the polar bear. If PFR decides to take on a pilot project with a new financial tool, it will have to pick a high-profile project to capture the public's imagination.

Arjaliès and Gibassier demonstrate that despite the conservation organization not issuing a CIB, financializing their processes was beneficial for sharpening their conservation focus on insular species, providing financial metrics that attracted and engaged donors, and improving the public communications. These insights are transferable to PFR department, where linking financial metrics to biodiversity conservation activities would be beneficial for improving their public communications and building a better relationship with the public.

Valuing biodiversity is important to ensure the sustainable management of natural assets. (de Valck & Rolfe, 2019) Doing this is crucial to design financing mechanisms to preserve biodiversity when social costs and benefits are not equally distributed. This is applicable at the City, where the Parkland Strategy centres an equity lens and interviewed PFR employees stated that an increased attention to equity-seeking groups. (P. Communication, 2021)

Examining the lack of a comprehensive assessment of the Great Barrier Reef's biodiversity valuation, increased conservation expenditures helps to reduce biodiversity loss, protecting Australia's coast line from storm surges. (Waldron et al., 2017) They indicate that challenges exist like identifying how conservation and protection programs can be financed, and how public funds can be augmented with private finance to deliver higher levels of protection. De Valck and Rolfe also highlight the relationship between biodiversity and ecosystem services (ES). The authors provide a four-step process for taking an ES perspective with the first step being obtaining information about a study area and each composing ecosystem. This step is relevant to the City whose Biodiversity Strategy does not account for this. It is worth noting that the City and the Toronto Region Conservation Authority have undertaken studies to

quantify the benefits of its urban forest and ravines. The TRCA conducted a “Valuation of Ecosystem Services Provided by the City of Toronto Ravines” in 2008. A City of Toronto study from 2008 estimated the value of its urban forests to be CAD 28 million. (M. Sherman, P. Communication, 2021) The City of Toronto has conducted tree canopy studies in 2008, 2013 and 2018 using the USDA Forest Service i-Tree Eco model to calculate its value. (P.Communication, 2021) The City of Toronto is also currently working with the University of Toronto to gather data using the Vegetation Sampling Protocol for over 300 plots at its ravines. (M. Sherman, P. Communication, 2021) It is unclear if that led to a dollar valuation of the ravines’ ecosystem services. Prioritizing comprehensive biodiversity valuation should not be overlooked by PFR as such information can help to evaluate the financing mechanisms to address biodiversity conservation. (de Valck & Rolfe, 2019)

There is growing market demand for biodiversity finance opportunities as the NCC and Rally Assets roughly estimate a biodiversity funding gap of USD 15–20 billion (CAD 19.5–26 billion) in Canada annually. (Kosciolek et al., 2020) We can approximate the funding gap for the City by taking its proportion of Canada’s population (7.75%) and leading us to an estimated annual funding gap of USD 1.16–1.56 billion (CAD 1.51–2.03 billion) to address biodiversity. [3] Considering that the City of Toronto can only issue \$1 billion in debt annually and a portion of this is green bonds, the municipality must look beyond these mechanisms to fulfil this annual biodiversity funding gap in order to increase parkland dedication.

Earth Security defines blended finance as an approach that involves the use of public and philanthropic funds to change the risk/return profile of investment projects to attract the private sector. The NCC and Rally Assets report encourages a blended finance approach that builds on the strengths of the government, non-profit and private sectors. The federal, provincial, or municipal government can provide upfront capital, which can attract funding from other sectors. In its June 2021 report, Earth Security’s recommendations primarily focused on engaging public finance institutions to provide de-risking capital at a larger scale, to educate private investors about NBS investing, and targeting institutional investors. The latter group’s long-term focus and their concentration in Toronto make them a suitable financing partner. As well, many institutional investors have sustainable finance experts on staff. However, overcoming small transaction sizes in NBS is a critical barrier to attracting institutional investors. This leaves the door open for an ambitious parks project to be proposed in Toronto, which can be taken on with public enthusiasm to get buy-in from financial and citizen stakeholders. The Scottish Conservation Finance Project’s £1 Billion Challenge provides a 12-step guide to developing conservation finance initiatives and shares numerous examples. (Natural Capital Scotland, 2020)

The NCC and Rally Assets report recommends pursuing Indigenous-led and/or stewarded conservation through Indigenous Protected and Conservation Areas (IPCA). IPCAs allow Indigenous Peoples to use their knowledge to conserve land in

partnership with governments. This concept came out of the federal government's Indigenous Circle of Experts, a group of Indigenous and non-Indigenous Canadians who examined how IPCAs could be realized in the spirit of reconciliation. (Kosciolek et al., 2020) **Figure 6** shows a map of Canada's Target 1 challenge projects. The blue dots represent IPCAs in British Columbia, New Brunswick, and Nova Scotia. (Government of Canada, 2021b) In Toronto, Indigenous-led conservation would mean engaging with the municipal Indigenous Affairs Office and the Mississaugas of the Credit First Nation as first steps. In Budget 2018, the federal government prioritized IPCAs through the Nature Fund. The most recent federal budget mentions IPCAs as part of achieving Canada's increased target of 25% of the country's areas being protected by 2025 in compliance with the increase of the CBD's targets for protection from 17 to 30%. **(Figure 7 shows the three essential elements of IPCAs)** Having Indigenous and other grassroots stakeholders will be important for any novel effort to succeed at increasing parkland acquisition in Toronto.

Figure 6: Map of IPCAs in Canada



IPCAs are represented by blue dots. Source: Government of Canada

Figure 7: Three essential elements of IPCAs**Three essential elements of IPCAs**

1. Indigenous led
2. Represent a long-term commitment to conservation
3. Elevate Indigenous rights and responsibilities

Source: *We Rise Together*, 2018. Indigenous Circle of Experts

Source: Financing Conservation, The Nature Conservancy of Canada and Rally Assets, 2020

It is challenging to monetize project-based revenue or “asset-backed” bonds for land conservation due to difficulties in generating steady cash flows and obtaining the scale that makes it financially attractive. (DuPont et al., 2015) Certain land conservation projects are too small for the scale that investors are interested in, but this can be overcome by grouping projects together for the purposes of a financial instrument, i.e. a green bond issuance. Financiers look for standardization despite habitats and species being unique. (Arjaliès & Gibassier, 2022) For PFR, this could mean focusing on one project instead of packaging several into a green bond issuance, for instance. DuPont et al., 2015 focus on the use of green bonds to fund projects related to sustainable land use and conservation. This includes forestry, land acquisition, and conservation easements, which are all applicable for PFR. The relevant categories for the City outlined by DuPont et al., 2015 are Risk Mitigation and Avoided Revenue, and Tax Revenues. The latter may also be framed as part of the city’s Green Bond Framework. Risk Mitigation and Avoided Revenue are projects with environmental benefits to help the borrower avoid costs that would otherwise be incurred. (DuPont et al., 2015) Tax Revenues can include Tax Increment Financing, for which the Province of Ontario has passed by law, but there are no regulations attached to it. Risk Mitigation and Avoided Costs are helpful for municipalities or corporations weighing costs of green versus grey infrastructure investment. E.g. upstream riverside land conservation can reduce the need for downstream filtration.

There is also a mismatch in internal rate of return (IRR) expectations for conservation finance projects for different investor types. A 2016 NatureVest report surveyed non-profit and private capital respondents. An internal rate of return provides the expected annual rate of return of a capital expenditure after applying the discount rate. The discount rate is the amount of risk, interest or inflation that is applied to the future cash flows of an investment. [4] Of non-profit respondents, 83% expected an IRR of 0%–4.9% meanwhile 64% of private capital respondents expected an IRR of 5%–9.9%. (Hamrick, 2016)

There is growing interest in the financial markets in natural capital and Environmental, Social and Governance (ESG) investing. The City released its first ESG report in January

4 See Glossary for definitions of discounted cash flow, internal rate of return, facility, real assets.

which is a positive step for attracting responsible investors. (CFO and Treasurer, 2021) The June 2021 release by the Taskforce on Nature-related Disclosures (TNFD) of its proposed scope and governance indicates how serious the financial sector is in addressing the investability of nature. It is modeled on the Taskforce on Climate-related Disclosures (TCFD), which is a widespread reporting framework by publicly-traded companies. This has arguably added value to sustainable investments in the marketplace and attracted investors. (Crona et al., 2021) A beta version of the framework was released in March 2022 and the final version is scheduled to be released in September 2023. (Blaze Baum, 2022) The TNFD has the potential of enabling a similar pathway as nature-related disclosures by public companies may be mandated by securities regulators.

This is happening at a time when the International Public Sector Accounting Standards Board (IPSASB) is studying the inclusion of natural resources in financial reporting, which could lead to Canada's Public Sector Accounting Standards Board (PSAB) doing the same. (Blaze Baum, 2021) Currently, the valuation of natural assets is not included in municipal financial statements, however there is a reconsideration of this in Canada due to recent natural disasters. The federal government also announced a national overland flood insurance program to be in place in 2023 for high-risk flood areas. (Hunter, 2022) PFR is undertaking work to quantify its biodiversity value, which has not been brought to Toronto City Council at the time of drafting the MRP. (P. Communication, 2021) Continuing this work will be important for PFR to quantify the benefits of increased parkland acquisition using reserve funds and new financial tools. It will be beneficial for attracting investor interest in BDC in Toronto.

Despite the public attention around sustainable finance, it is not a panacea for parkland dedication. Crona et al., 2021 point out the crucial gap that exists in sustainable finance addressing or acknowledging critical interactions between the effects that a given sector's negative externalities have on other economic sectors. They refer to a risk loop causing an "aggravation risk", where negative externalities caused by investments lead to financially material systemic risks (at different timescales). This connection to finance is that the systemic risk occurs where impacts of one economic sector affect itself and/or other sectors. The risk loop also refers to the "tipping cascades" that occur when regions' (e.g. the Amazon) internal dynamics can affect other regions. For instance, deforestation occurs to produce oil seed stocks used for aquaculture when the former will become more at risk of drought. Crona et al., 2021 make the analogy of the interconnectivity in the financial sector that caused the 2008 financial crisis and how this is bound to occur within the biosphere with the interconnectivity that exists there.

Crona et al., 2021 state the risk of ESG promoters overstating the benefits of their work to address the sustainability problem causing an erosion of trust. They call for new alliances between science and finance. Thus, it is important to provide license and encouragement to public institutions like the City of Toronto's PFR and Capital Markets departments strengthen collaboration to address parkland dedication. Their leadership

can guide action on the appropriate private mechanisms to implement increased biodiversity conservation solutions.

In examining urban forestry programs in the U.K. consideration of promoting social inclusion among ethnic communities was important. (Johnston & Shimada, 2004) These programs needed to respond to the needs of women, the disabled, the elderly and the unemployed. (Johnston & Shimada, 2004) It is important for PFR to include disadvantaged ethnic communities in the consultation process of increased parkland acquisition using reserve funds or novel financial tools. Johnston and Shimada's findings are echoed by (Campbell-Arvai & Lindquist, 2021) in having disadvantaged, racialized Detroit residents provide feedback on green infrastructure (GI) initiatives, e.g. stormwater infrastructure. By applying this approach, municipal staff iteratively made design changes using software. Ensuring that diverse voices are heard through municipal collaboration with citizens on GI is essential to ensure community buy-in of these projects. (Campbell-Arvai & Lindquist, 2021)

Financial Instruments: Private Instruments

Globally, there are new financial instruments being applied to address biodiversity conservation. Different terms like natural capital, green infrastructure, natural infrastructure, and biodiversity net gain are used. Nevertheless, these instruments can be used for parkland acquisition in The City. Each instrument will offer either Canadian, U.S. or other international examples at the City of Toronto.

Parametric Insurance (Spotlight on MNAI, IBC and Swiss Re)

Parametric insurance is designed to payout when a pre-defined event occurs with the funds being directed towards restoring natural infrastructure, e.g. wetlands. This differs from other insurance products that pay claims when losses or physical damage occurs and cover costs for the affected building or property. The Municipal Natural Assets Initiative, the Insurance Bureau of Canada and Swiss Re announced a pilot project in September 2020 for a new insurance product to incentivize local governments to manage natural assets. Three types of flood perils and insurance solutions were grouped based on agricultural, urban and coastal communities. (Stewart, 2020)

An example of parametric insurance would be if Truro, Nova Scotia protected sand dunes or salt marshes to mitigate coastal flooding. (Stewart, 2020) Insurance could cover the cost of construction to restore these natural assets. An insurance payout

would be triggered when a predetermined condition is met, e.g. water level, with the funds being used to restore the dunes or marshes. (Stewart, 2020) Parametric insurance has also been used to fund coral reef protection in Mexico through a partnership between Swiss Re, The Nature Conservancy and the State of Quintana Roo. (Artemis, 2018) In Toronto, parametric insurance coverage could include restoration costs for sites of biodiversity/ecological importance in existing parkland or parklands that are acquired.

Blended Finance

Blended finance is defined as involving the use of public and philanthropic funds to change the risk/return profile of investment projects in order to attract the private sector. (Earth Security, 2021) The public or philanthropic sectors are typically the first investors in a conservation finance project that serves as a proof of concept. The public or philanthropic can also be the subordinate partners in an investment, e.g. non-preferred shareholders or creditors. This approach essentially de-risks the project for interested private sector participants. This financial tool requires multiple stakeholders and its structuring is increasingly sophisticated to meet the return needs of different actors. U.S. and European foundations, financial institutions and multilateral agencies have led in this instrument's development. Blended finance arrangements tend to have a private-sector/cash-generating component.

Concessional Finance

This is when public or private financial institutions provide more favourable loan terms in order to attract investment capital. These terms can mean a party offers lower than market interest rates to reduce a project's cost of capital. Such an arrangement can help make projects financially attractive to private financial institutions. It may mean having certain investors accept subordinate or junior terms (e.g. first-loss). Concessional financing can be structured to a pre-agreed set of results to tie financing to environmental or social impacts. This makes it akin to impact bonds, impact-linked loans or results-based financing, which we will discuss later in this report. There are also concessional tax incentives, e.g. tax exempt municipal bonds in the U.S. In a January 2022 conversation with Jeremy Guth, board member of the Woodcock Foundation, an environmental conservation organization, he raised the idea of creating an Urban Green Space Bond. Mr. Guth stated that a fixed income or debt instrument by which to raise capital in the financial market that would be underwritten by the current cash balance in municipalities and the income generated by CIL transfers from development projects.

Case Example: Forest Resilience Bond (FRB)

The funding gap in California for addressing forest management and wildfire risks is estimated to be USD 6 billion. The FRB helps to speed and scale forest restoration in the western U.S. Blue Forest Conservation (a fund manager), the Tahoe National Forest, the Yuba Water Agency and the National Forest Foundation used a USD 4 million bond issuance to protect 15,000 hectares of forest from wildfire risk. (Kosciolek et al., 2020)

Additional foundations committed concessional financing at below market rates, which allowed for private investors like Calvert Impact Capital and CSAA Insurance Group to obtain higher rates of return. The fact that foundations accepted lower rates of return to make the project more commercially attractive validates research on differing IRR expectations based on investor type. (Hamrick, 2016) Having multiple parties led to cost sharing, which reduced costs for individual stakeholders. For instance, the Yuba Water Agency and the water utility share reimbursement payments to investors. However, they benefit from the bond because its project outcomes include improved water quality and reduced sedimentation. (Earth Security, 2021) A City of Toronto application of this approach would identify and engage the beneficiaries of cleaner ravine and lake water.

Spotlight: Revolving Funds – The Natural Capital Pioneer Conservation Fund (Scotland)

A revolving fund is replenished through repayments of the loans drawn from the fund or by a constant flow of financial contributions. (UN-Habitat, 2017) The Natural Capital Pioneer Fund provides unsecured loans to businesses unable to access traditional lending to boost investment into firms that are reducing biodiversity loss. E.g. restoring oyster reefs, which would help to promote conservation-friendly aquaculture and agriculture. This fund can be structured like an evergreen fund with proceeds from projects replenishing the fund enabling future lending. In Toronto, such a fund would help fund sustainable businesses whose operations are reliant on the parks and/or ravines' protection.

Bonds (Green Bonds)

This is a form of debt, where the money raised is used (use of proceeds) to fund predetermined activities. They are fixed-income securities with a fixed interest rate and redeemable in full on maturity. A green bond functions in the same way, but the labeling and purposes are different. It is a fixed income product (debt) that is issued to finance environmental projects. High investor demand for this asset can allow for green bonds to be sold at a premium, reducing the cost of servicing debt. (Rendell, 2022)

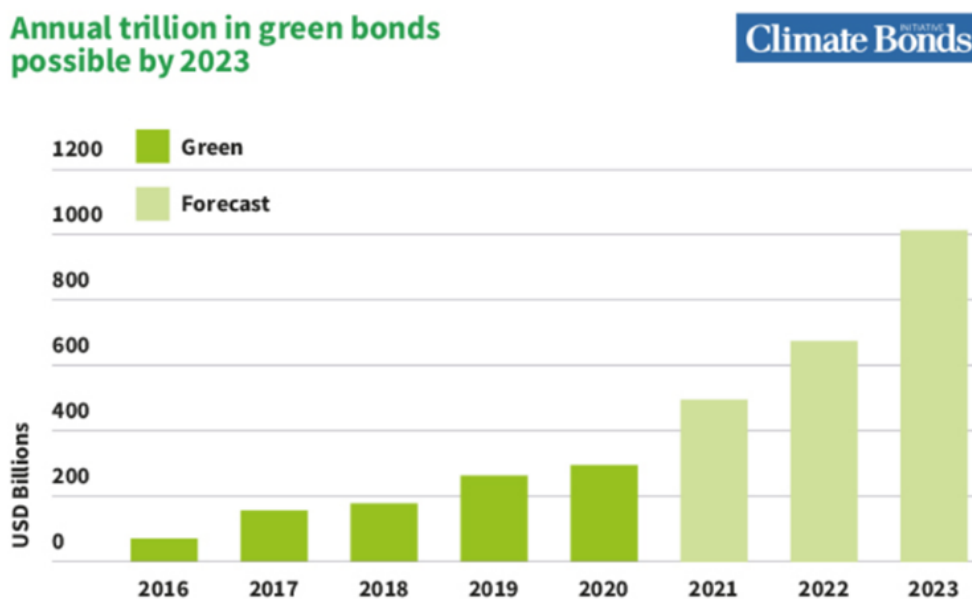
As a financial capital, Toronto is well-placed to tap banks headquartered there to act as underwriters to market and sell these products. As well, the City's strong credit rating (AA

and Aa1) helps it to attract institutional investors. When considering this financial instrument, officials must consider whether debt financing makes sense compared with other forms of financing.

To be credible and avoid greenwashing, green bonds' intended proceeds must be reviewed by a second- or third-party opinion provider. The bonds are assessed against two voluntary frameworks: the Green Bond Principles and the Climate Bond Standard. The latter addresses land conservation and restoration under the Forestry Criteria. The Canadian federal government issued its first green bond worth \$5 billion in March 2022. According to Refinitiv, there was US\$ 14 billion worth of green bond sales in Canada in 2021. (Rendell, 2022) According to the Climate Bonds Initiative, renewable and transportation respectively account for 32% and 30% of Canadian bond issuance in 2018. Land use accounted for only 5%. Although there is an opportunity for biodiversity conservation, generating cash flow and scale continue to be challenges for these projects. (Kosciolek et al., 2020) Packaging land acquisitions as part of a larger bond issuance is an advisable strategy for achieving scale and attracting institutional investors.

Green bonds have seen significant growth since their advent in the late-2000s as institutional investors have bought into them to a large degree. According to the Climate Bonds Initiative, green bonds have reached USD 1.3 trillion in cumulative issuances. (Climate Bonds Initiative, 2021) **Figure 8** shows an industry projection that annual green bond issuances can reach USD 1 trillion by 2023. If bond issuances are oversubscribed (where demand outstrips supply) then, it allows the issuer to set favourable rates.

Figure 8 – Green Bonds Market Growth



Source: Climate Bonds Initiative

Risk Mitigation and Avoided Revenue, and Tax Revenues are the two revenue types under green bonds that may be most realistic to apply in a The City context. DuPont et al, 2015) Tax Revenues can include Tax Increment Financing, for which the Province of Ontario has passed by law, but there are no regulations attached. Risk Mitigation and Avoided Costs are helpful for municipalities or corporations weighing costs of green versus grey infrastructure investment. E.g. upstream riverside land conservation can reduce the need for downstream filtration.

General Purpose Bonds

This bond type is where the use of proceeds are dedicated to specific projects (in our case, green projects). It does not matter what the source of capital is to pay back the principal and interest to issuers. Nor are there specific results that need to be achieved to unlock payments. However, best practice is for there to be key performance indicators (KPIs) tied to the green bond and periodic public reporting.

Case Example: The City of Toronto Green Debenture Framework

The City can issue debt for capital projects, but is prohibited from borrowing for operating expenses under the The City of Toronto Act. (Budget 2021, p.59) The City released its Green Debenture Framework in 2018, under which it has issued three green bonds. The framework allows for capital projects under the following categories to be funded: renewable energy, pollution prevention and control and utilizing waste as a resource, sustainable clean transportation, sustainable water and wastewater management, climate change adaptation and resilience, eco-efficient and/or circular economy principles integration, and green buildings. The areas of greatest interest for this project are: climate change adaptation and resilience, and sustainable water and wastewater management.

Eligible projects are selected by the City's Corporate Finance Division (CFD) while consulting internal and external experts that includes Parks, Forestry and Recreation (PFR). CFD will verify the suitability and eligibility with the Environment & Energy Division. Reporting on the bonds occurs annually and through the publication of a public newsletter. There are various KPIs that are applied for reporting. For our purposes, the most suitable KPI's would be: increase in permeable surface area (%) (Sustainable Water & Waste Water Management) as well as Avoided cost of basement flooding (\$) and increase in tree canopy (%) (Climate Change Adaptation & Resilience).

Part of the proceeds of the City's second green bond issuance in September 2019 were used to fund Port Lands flood protection. Of the \$200 mn issued in this bond, \$44.1 mn (22%) were allocated to Port Lands flood protection. (Toronto, 2020) Based on public reporting, it is unclear how these funds are being used for the Toronto Port Lands flood protection. Given the significant restoration and planting occurring there, it provides a model to replicate for BDC parkland dedication. However, we expect there to be an em-

phasis placed on how the aforementioned KPIs can be expressed through biodiversity conservation. Restoration work (i.e. tree planting) may have to figure as part of these plans. It is worth noting that proceeds from the 2018 green bond (worth \$300 million) were used for planting hundreds of trees at the Leslie Barns property.

The City expects to issue \$1 billion (2021) and \$800 million (2022) worth of green bonds going forward. The City is leveraging its strong credit ratings and low interest rates to sell these bonds to institutional investors. It is unclear what metrics are used to assess what funding sources are being used to pay back the principal and interest.

Outcomes-Based Bonds (AKA Results-Based Financing)

These types of projects pay out for predetermined social and/or environmental outcomes. Variations of this model include pay-for-performance, payment for ecosystem services, and resilience bonds.

Environmental impact bonds (EIBs)

This pay-for-performance framework brings in multiple partners to compensate for the financing gap that can exist between government and philanthropy organizations. There must be a party willing to achieve a desired social or environmental outcome, a beneficiary or third party willing to pay for successful achievement of said outcome, and another party who is willing to provide the upfront capital. Having a tripartite or multipartite model allows for risk-sharing regarding environmental performance, which may also incentivize this instrument's success. This model is similar to social impact bonds, which will be discussed later.

Case Example #1: DC Water Bond (Washington, D.C., USA)

DC Water and Sewer Authority issued a USD 25 million tax-exempt bond in September 2016, where the proceeds were used to fund rain gardens, permeable pavements, green roofs and rain barrels. The intention was to reduce the 2 billion US gallons of combined sewer overflows (CSOs) polluting local rivers and tributaries. In April 2021, the investors would be paid based on meeting the conditions displayed in **Table 5**. If the green infrastructure underperformed and the stormwater runoff was greater than 18.6% then, the investors made a risk share payment to DC Water. Project partners included Quantified Ventures and Goldman Sachs. (Goldman Sachs, 2016)

This project had the co-benefits of creating green jobs to train DC residents on constructing, maintaining and inspecting green infrastructure. It set a 51% target of having DC residents fill these roles. Toronto can place similar conditions on an outcomes-based model that prioritizes employing individuals from under-represented groups.

Table 5: DC Water Bond Payment Outcome Conditions

Performance Tier	Outcome Ranges	Contingent Payment
1	Runoff Reduction > 41.3%	DC Water will make an Outcome Payment to Investors of \$3.3 million.
2	18.6% <= Runoff Reduction <= 41.3%	No contingent payment due.
3	Runoff Reduction < 18.6%	Investors will make Risk Share Payment to DC Water of \$3.3 million.

Source: Goldman Sachs

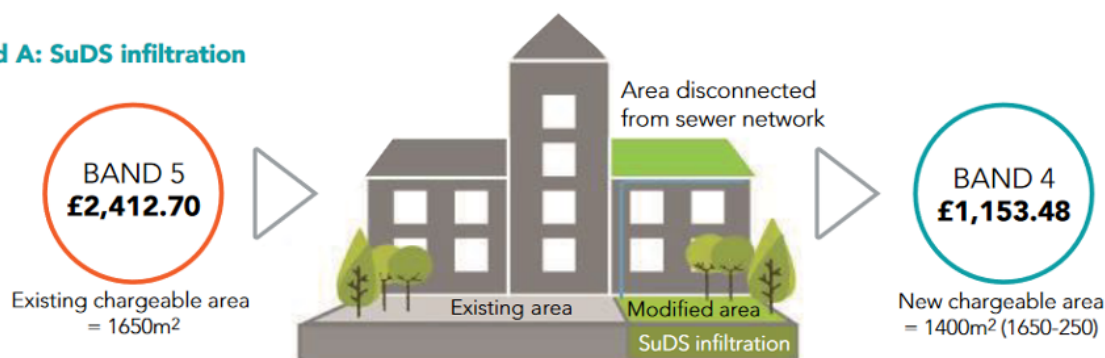
Case Example #2: Sustainable Urban Drainage Systems (SuDS) in Manchester, UK

How green bonds are structured regarding how investors received the money back is of note for designing interventions that are relevant for this project. A green bond for parks could be modeled on SuDS retrofits on public sector-owned sites in Greater Manchester, UK. The capital costs used to install SuDS can be repaid through monetizing savings in drainage costs and benefits to the local utility through reduced sewer overflows, which incur significant costs. Such a framework would be applied to selecting parks that provide quantifiable benefits like decreased costs from reduced flooding. The benefits can be monetized for Toronto Hydro or even natural gas firms whose pipelines could benefit from less disruptions. The savings can satisfy the demands of the low coupon rates that are often inherent to green bonds. In contrast, the savings could allow utilities to contribute to a higher and more attractive coupon. Numerous SuDS projects are being implemented in Greater Manchester as part of its IGNITION project by April 2022. This is part of a multi-stakeholder initiative that received EUR 4.5 million in European Union funding. (Greater Manchester Combined Authority, 2020)

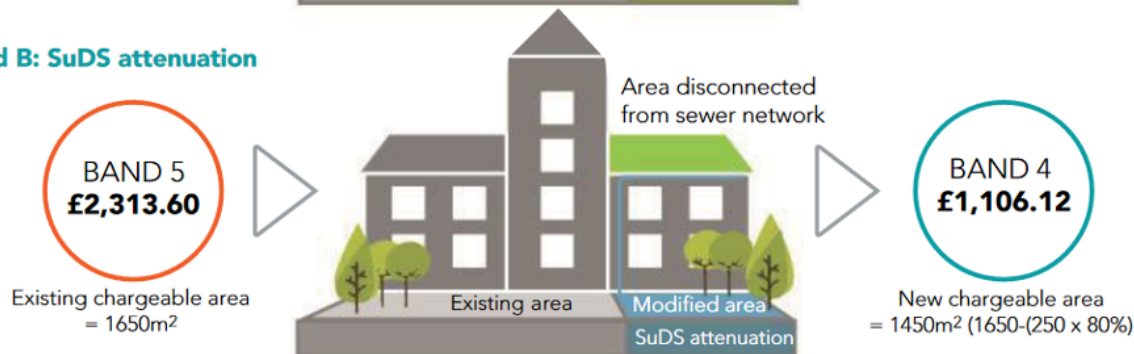
Figure 9 explains how the SuDs model works in Greater Manchester, UK. It is akin to a stormwater charge. Property owners make modifications to their property to reduce rain run-off, e.g. installing a rain garden. Thus, property owners move down a charge band for the local utility and save on their utilities charges.

Figure 9: How the SuDs model works in Greater Manchester (UK)

Method A: SuDS infiltration



Method B: SuDS attenuation



Water retailers can charge an additional 4 – 14% on top of these rates, therefore site owners may be charged more than is outlined here.

Source: UK Green Building Council, 2021.

Case Example #3: The Deshkan Ziibi Conservation Impact Bond (DZCIB) (Southwestern Ontario, Canada)

A Conservation Impact Bond (CIB) works as an established contract, where investors provide upfront capital, and governments and donors act as the outcome payers. (Arjaliès & Gibassier, 2022) Conservation organizations receive money to implement the conservation project. The DZCIB was created to reverse habitat loss and accelerating growth of healthy landscapes. It was launched in 2020 by the Deshkan Ziibiing (Chippewas of the Thames First Nation), VERGE Capital, Thames Talbot Land Trust, Ivey Business School and Carolinian Canada Coalition, with the support of 3M. Phase 1 of the DZCIB has the goal of improving 400 ha (1,000 acres) of Ontario's Carolinian Zone by 2023. (Deshkan Ziibi Conservation Impact Bond Leadership Team, 2021) As of July 2021, the DZCIB pilot has supported 53 healthy landscape projects, 69 hectares (171 acres) of habitat have been improved, 39,000+ native plants have been planted, and 450 people have been engaged. Its output metrics are: number of hectares of habitat improvements, number of people engaged with learning about the land, number of intercultural and cross-sectoral economic opportunities, nature connectedness, and quantity and quality of ecocentric sightings. Environment and Climate Change Canada (ECCC) provided \$300,000 in November 2021 to match private sector contributions for Phase 2 of the DZCIB.

Wildlife Bonds (Case Example: Rhino Impact Bond – Conservation Capital)

Conservation Capital is a UK-based firm focused on structuring financial transactions in conservation with benefits for wildlife, business and people. It has funded conservation projects in 27 countries amounting to over USD 250 million in value. (Conservation Capital, 2021) The firm made international headlines in 2019 when it was involved in designing and launching the Black Rhino Conservation Performance Bond worth USD 50 million in Kenya, RSA and Zimbabwe. (Aglionby, 2019) It is possible for this bond to be expanded to lions, tigers, gorillas and orangutans.

The bond was issued in April 2021 with a 5-year term and no annual coupon. (Bloomberg, 2021) Investors will be reimbursed for original capital and additional payout on rhino population growth targets over 5 years. It promises additional returns if more targets are met. As has become standard practice, the bond is evaluated against its targets. The bond was issued by the World Bank and IBRD. Credit Suisse acted as an adviser and UBS supported it. The bond principal is to be paid out by the Global Environmental Facility.

The Rhino Impact Bond has potential since its co-benefits can include job creation from increased tourism. However, it can also have perverse, unintended consequences, e.g. destabilizing another species' numbers. Thus, it is important for such interventions to account for these risks when choosing a species or habitat. A variation to the Rhino Impact Bond can be introduced that includes multiple species to reduce unintended consequences.

A similar focus on keystone species can be applied to funding parkland dedication in Toronto. A 2018 Toronto Region and Conservation Authority (TRCA) article names five endangered species in Toronto: American Eel, Jefferson Salamander, Piping Plover, Redside Dace, and the Rusty-Patched Bumble Bee. (Toronto and Region Conservation Authority, 2018) One of these species could be the face of an environmental impact bond that is part of an ambitious parkland acquisition project. Given the importance of Toronto's Ravines, a multi-species or habitat approach with co-benefits and reduces unintended consequences can be tied to a wildlife bond issuance. Such a bond can dovetail and amplify the TRCA's Lake Ontario Atlantic Salmon Restoration Program and Toronto's Ravine Strategy. The Atlantic Salmon was extirpated from local waters in 1898. (Toronto and Region Conservation Authority (TRCA), 2020) (TRCA, 2020) However, a coalition made up of the Ontario Federation of Anglers and Hunters (OFAH) and the Ontario Ministry of Northern Development, Mines, Natural Resources and Forestry (NDMNR), and other partners launched an initiative to bring back the Atlantic Salmon to Lake Ontario and local waters in 2006. (Bring Back the Salmon, 2022)

Investing in improving ravines and acquiring parkland adjacent to them through an environmental impact bond has significant public benefits. In June 2021, five Toronto beaches

were deemed unsafe due to e.Coli bacteria reportedly caused by heavy storm runoff. (CBC News, 2021) Improved riparian vegetation through increased park spaces can mitigate the downstream consequences of storms. The tangible, long-term benefits of cleaner water can lead to improved recreation opportunities along Toronto's beaches, which would help PFR fulfill its mandate. Cleaner water and beaches would also provide tourism benefits.

Sustainability-Linked Bonds (SLB)

These bonds are typically issued by corporations and whose structure can vary depending on whether the issuer achieves predefined sustainability/ESG objectives. (International Capital Markets Association, n.d.-b) Thus, issuers are committing explicitly to future improvements in sustainability outcome(s) within a predefined timeline. (International Capital Markets Association, n.d.-b) A hallmark of SLBs is that issuers need to define metrics that are relevant for biodiversity impacts. Failure to achieve targets can impact coupon payouts. In a Toronto context, SLBs can be tied to gains made in flora and fauna from parkland acquisition. Similar to wildlife bonds, SLBs can have unintended consequences by focusing on a single species instead of multiple or a habitat.

Spotlight: Klabin (Brazil)

Klabin is a Brazilian pulp, paper and packaging company that issued a Sustainability-Linked Bond in January 2021. (Klabin, 2021) The bond had three Sustainability-Performance Targets with a 2025 deadline. The reintroduction and/or reinforcement of wild species into the ecosystem is a key performance indicator (KPI), which relies on definitions set by the International Union for Conservation of Nature (IUCN). Klabin has committed to reintroducing two species by 2025. If Klabin does not meet this target then, its bond coupon (AKA interest rate) will increase by 6.25 basis points. (Sustainalytics, 2020)

Social Bonds

Social bonds as a concept are similar to green bonds. They are defined as use of proceeds bonds that raise funds for new and existing projects with positive social outcomes. (International Capital Markets Association, n.d.-a) The Social Bond Principles are an important reference point for evaluators. Although the Principles aim to promote services for specific vulnerable populations there is an understanding in the market that you cannot restrict access to public infrastructure, according to a former manager in Sustainable Finance Solutions at Sustainalytics. By their nature, parkland includes everyone. An implication for City of Toronto officials looking at parkland acquisition is that a social bond would appeal by addressing the needs of vulnerable groups. An important question to ask is: who is being served by this bond?

Spotlight: City of Toronto Social Bond

The City of Toronto was Canada's first municipality to set-up a Social Debenture Framework. (City of Toronto, 2020b) The framework was developed according to the International Capital Markets Association's 2018 Social Bond Principles, which are considered best practice. Eligible use of proceeds must fall within the following categories:

social and affordable housing, affordable basic infrastructure, access to essential services, and socioeconomic advancement and empowerment. In 2020, the City of Toronto issued its first social bond with a 10-year term, 1.6% coupon rate and valued \$100 million. The proceeds would be used to fund Support and Housing Administration's George Street Revitalization project and the City's 1,000 New Shelter Beds projects. (City of Toronto, 2020c)

Social Impact Bonds

In their structuring, SIBs are similar to the aforementioned instruments like parametric insurance, resilience bonds and wildlife bonds. The Public Health Agency of Canada bond model (see Spotlight below) can be applied to biodiversity conservation being tied to health outcomes given recent research investigating this link. SIBs offer a novel way to address equity and environmental issues through biodiversity conservation.

Spotlight: Heart and Stroke Foundation, MaRS and the Public Health Agency of Canada

In 2017, the Heart and Stroke Foundation partnered with MaRS and the Public Health Agency of Canada on a social impact bond to improve prevent hypertension with at-risk seniors. (MaRS Centre for Impact Investing, n.d.) PHAC paid out the bond once an independent evaluator assessed whether the program met its outcomes. If the program did meet its targets then, investors lost most of their capital.

Insurance-Linked Bonds

Catastrophe Bonds (AKA Cat Bond)

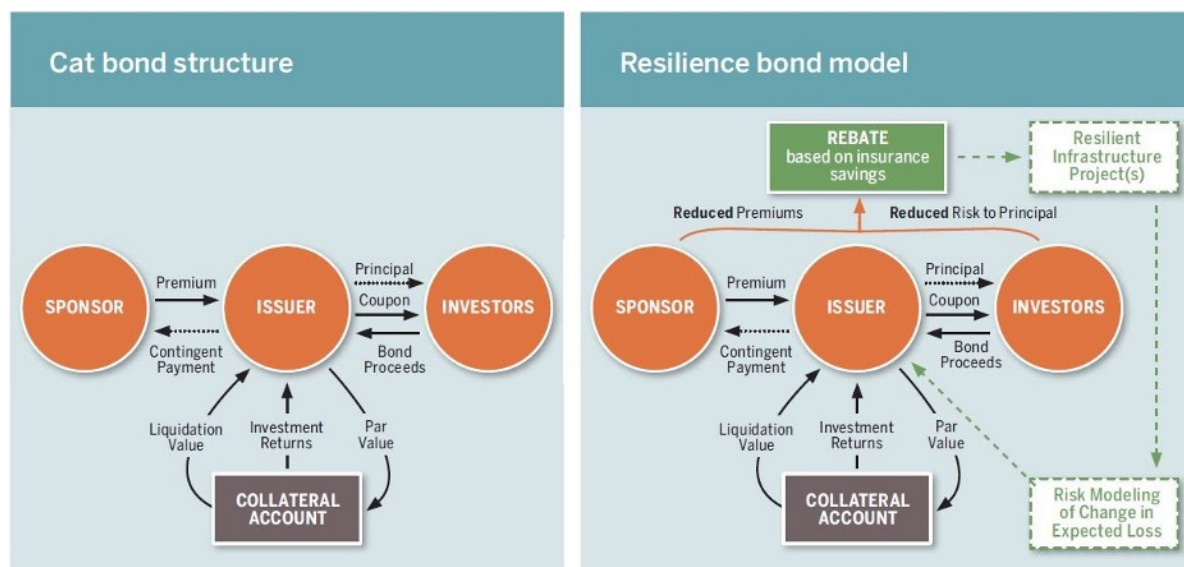
An insurance policy, where the policyholder receives a pay-out when a disaster reaches a predetermined threshold. (Vaijhal & Rhodes, 2019) These bonds were created after Hurricane Andrew struck the U.S. in the 1990s. This product transfers risk to the capital markets, alleviating pressure on government coffers for payouts when disaster strikes. Hurricanes, floods, earthquakes and typhoons are triggers for payouts. Loss-and-damage based triggers set a threshold based on the total insured or total economic losses experienced by a single firm (indemnity) or industry (indexed) and can be based on wind speed or storm surges at specific locations. (re:focus Partners, 2017) Examples of how proceeds are used for cat bonds include seawalls, berms, and tidal gates. (re:focus Partners, 2017) These interventions can include nature features. Cat bonds have a 3-to-5 year term and are not traditional municipal bonds. The aim of a cat bond is not to limit physical damages, but to reduce economic disruptions from financial losses. (re:focus Partners, 2017) When the worst natural disasters strike, the policyholder receives a payout and investors lose a part of or all of their investment principal. **(Figure 10)** There was a record USD 11 billion in catastrophe bond issuances in 2020. (Lerner, 2021)

Resilience Bonds

Similar to catastrophe bonds, except they are designed to fund proactive risk reduction and reactive disaster recovery. (Vaijhal & Rhodes, 2019) It was in this context with Hurricane Harvey that the benefits of stormwater infiltration were observed in more biodiverse and soft-scaped parks in Houston. Resilience bonds link insurance premia to resilience projects to monetize avoided losses through a rebate structure. (Vaijhal & Rhodes, 2019) **(Figure 10)** The “resilience rebate” can fund risk reduction projects, e.g. NBS or parkland acquisition. The “resilience rebate” is akin to a private health insurance provider that incentivize policyholders to make healthy choices, e.g. quitting smoking, through lower premia because of the lower long-term risks and healthcare costs.

The resilience bond structure quickly pays out the sponsor (the policyholder) when a catastrophic event occurs and uses the rebate to obtain new project financing for natural/green infrastructure. The European Bank of Reconstruction and Development issued the first ever dedicated climate resilience bond in September 2019. (Bennett, 2019) The proceeds would be used to fund water, transportation, communication and urban infrastructure. Resilience bonds can be well-suited for funding flood mitigation, making parkland dedication an ideal candidate for their application.

Figure 10: How Catastrophe Bonds and Resilience Bonds Work



Credit: refocus Partners, 2019

Resilience bonds are not without their challenges. They require multiple stakeholders like government, utilities, and the private sector. Government may play a facilitating role as the implementing authority for a large infrastructure, but it may not always be the project's biggest beneficiary. (Vaijhal & Rhodes, 2019) The timing of resilience bond issuance must also match that of a major infrastructure project, which may make drumming up interest in the bond take longer than a catastrophe bond. Another obstacle is overcoming institutional silos in government departments to ensure that the City's

finance, parks and infrastructure departments cooperate on a resilience bond project. Lastly, a project's long timelines means that it may be years before the benefits are visible since they would help to prevent or to mitigate disasters. This can also pose a challenge for obtaining investor interest. Thus, resilience bonds may be politically unattractive.

Payments for ecosystem services (PES)

Notably undertaken in the European Union, PES remunerates landowners for providing ecosystem services, which are conditional on agreements regarding natural resource management. (Baroni et al, 2019) In other words, the beneficiary or user pays the service manager for their work in improving an ecosystem benefit. Payments can be input-based (costs of managing a site) or output-based. The latter is harder to implement because the estimation of service provision is challenging in a baseline scenario when additionality is needed. Large-scale government-led PES have been criticized for not delivering verifiable outcomes at scale. (Kosciolek et al, 2020)

Spotlight: Alternate Land Use Services (ALUS Canada)

A voluntary incentive program in six provinces, where farmers and rangers are paid annually to ensure ongoing stewardship of their qualifying projects. (ALUS Canada, 2022) These stakeholders are paid to conserve and restore wetlands, creeks, shorelines, native grasses and trees. This tends to be a market for corporations to encourage regenerative agriculture techniques, among other benefits. However, an application can be explored in Toronto to help with either parkland acquisition as well as parks maintenance and operations.

Carbon Offsets

According to Refinitiv, the global voluntary carbon market is worth USD 1 billion (CAD 1.27 billion). [5] (Carbon S, 2022) However, this market is not taken seriously by leading responsible investors, who are institutional investors, e.g. Desjardins, CDPQ. Carbon offsets can be an effective tool as it relates to additionality, where projects would have been funded regardless of this intervention. The TNFD might be a catalyst for this market. Carbon offsets must meet a set of criteria, including tenure, permanence (no leakage), additionality, authenticity and verifiability. (DuPont et al, 2015) Mitigation banking (AKA habitat banking) is a related tool, where biodiversity offsets can be developed to compensate for a project development's residual biodiversity impacts. (DuPont et al, 2015)

5 Exchange rate based on Bank of Canada on January 31, 2022 (1 USD = CAD 1.2719). <https://www.bankofcanada.ca/rates/exchange/daily-exchange-rates/>

Water Auctions

The use of water quality tenders and auction mechanisms to improve cost effectiveness may be a relevant avenue to address funding for parks. (de Valck & Rolfe, 2019) Companies whose operations or products' run-off contributes to water pollution could be subject to a fee. These could be traded on a marketplace similar to a cap and trade scheme. The benefit of water auctions is that it could mitigate e.coli bacteria's concentration on Toronto beaches.

Public-private partnerships (P3 or PPP)

Defined by UN-Habitat as long-term contracts between a private entity and a government for providing a public asset or service, where the private party bears significant risk and responsibility. (UN-Habitat, 2017) These are challenging and have a mixed history as evidenced by the Eglinton Crosstown LRT's delayed opening. It is unclear how PPPs can be delivered for green/natural infrastructure, but there is potential. There would have to be an attractive return for the private entity. An important consideration is whether prioritizing this attractive return would cause gentrification.

Spotlight: Oxley Creek, Brisbane, Australia

This flood-prone creek is being transformed into a 20-km green corridor to not only improve flood resilience but habitats and recreation. The AUD 100 million (CAD 110 million) project is funded through a PPP. [6] (Baroni et al., 2019) Brisbane City Council owns the Oxley Creek Transformation Pty Ltd, a new company that is responsible for redevelopment. (Baroni et al., 2019)

Financial Instruments: Public Instruments

Conservation Easements

Conservation Easements are alternatives to land acquisition when the purchase price is too costly. This may be a tool to explore seriously for properties backing on to Toronto's ravines, which 40% of is in private hands. (City of Toronto, 2017a) Thus, prioritizing connectivity of trails is prized by a City of Toronto PFR employee. "Trails allow people to interact with the natural environment...Trail-building is a big part of what we do because if you build a big one that allows for access to natural areas then, that allows for protection of those natural areas. It is the best way for them [people] to appreciate those environments." (P. Communication, 2021)

6 Exchange rate based on Bank of Canada on January 31, 2022 (1 USD = CAD 1.2719). <https://www.bankofcanada.ca/rates/exchange/daily-exchange-rates/>

The City of Toronto has A Property Owner's Guide to Healthy Ravines to inform landowners as much as possible about what they can do to help preserve the ecological features of the portion of their properties running along ravines. The approach used by Rutas Naturbanas in San José, Costa Rica, offers food for thought on how the City can pursue this idea further. **(See Case Example below)**

Case Example: Rutas Naturbanas, San José, Costa Rica

River banks in Costa Rica are private property in Costa Rica, although the rivers themselves are public. River banks though, are not allowed for construction and are categorized as a protection area by law and protected by the Ministry of Environment and Energy. Thus, they become a liability and a nuisance since private owners are not incentivized to steward them. Former Toronto resident and Costa Rica native Federico Cartín Arteaga co-founded Rutas Naturbanas to create public space via private property. Through easement-type of agreements, the organization activates biodiversity protection through legal agreements with river-fronting property owners. Rutas Naturbanas has worked with over 30 communities in six geographic areas in San José. The development industry is also buying in with one prominent project featuring Rutas Naturbanas-type of paths in its promotions.

Figure 11: Rutas Naturbanas



Rutas Naturbanas' first project: The Central Bank of Costa Rica (Source: Rutas Naturbanas)

Development Charges

According to the City of Toronto, development charges are fees collected from developers at the time a building permit is issued to help pay for the infrastructure required to provide municipal services to new developments. This includes roads, transit, water and sewer infrastructure, community centres and fire and police facilities. Changes in charges are announced in advance. Innovations in DC's applications can be used for parkland dedication and acquisition. **(see Case Example below)**

Case Example: The City of Surrey, B.C.'s Biodiversity Development Charge

Surrey's parkland acquisitions are funded through Development Cost Charges (DCC's) and cash-in-lieu of park dedication for developments. Like in Toronto and due to its proximity to Vancouver, rising land prices make it challenging for Surrey to purchase property for parkland. Parks, Recreation & Culture staff recommended and its city council approved adjusting the Parkland DCC in 2021 to introduce funding for Surrey's Biodiversity Conservation Strategy. The BCS has the aim of protecting critical habitat through the Green Infrastructure Network (GIN) linking green spaces through hubs and corridors. (City of Surrey, 2019) The BCS DCC is meant to acquire GIN land. The BCS DCC would be added to Surrey's Parkland Acquisition DCC and would be phased in over five years. It is worth noting that Surrey also has Biodiversity Design Guidelines. According to Pamela Zevit, Biodiversity Conservation Planner at the City of Surrey, the development community was supportive of the BCS DCC. The development community appreciated that the process was transparent since it provided them with certainty. As an aside, Community Amenity Contributions (CACs) (the B.C. equivalent of Section 37 benefits) do not pay for parkland but are an important method to cover the costs of key infrastructure as part of parkland acquisition. As an example, the City of Surrey is looking at this tool to pay for wildlife crossings between segments of parkland in the GIN.

Stormwater Charges

Stormwater charges are set by municipalities in two different ways: water consumption by property owners or amount of water runoff generated by their properties. The City of Mississauga brought in a stormwater charge in 2017, which is billed by the Region of Peel. The charge is calculated based on the amount of hard surface on a property, which is updated based on recent satellite imagery. (City of Mississauga, n.d.) The funds are used for stormwater management, e.g. planning and operations, and new capital construction. The City of Toronto attempted to introduce a stormwater charge in 2017 and 2021. The latest attempt resulted in a 3% increase in water rates in 2022 and 2023, the proceeds of which will go towards the annual capital reserve contribution. (City of Toronto, 2022c) The Sustainable urban drainage systems (SuDs) example on page 30 provides a variation of a stormwater charge. Proceeds from a stormwater charge can be used for acquiring parkland with stormwater management functions.

Corporate Contributions

Fining corporate polluters was en vogue as a consequence of the first wave of environmentalism in Canada and the U.S. in the 1960s and 1970s. This instrument has evolved significantly since then with the advent of carbon trading and cap and trade systems. It is worth asking whether hydro-electric natural gas companies who use Toronto's park corridors and ravines should pay a surcharge to the City. The proceeds can be used for parkland acquisition or go towards PFR's maintenance and operations budget. In interviews with ex and current conservation professionals, it was unclear what monetary contributions natural gas firms make towards being able to place infrastructure in hydro corridors or along ravines. We were told that they may pay for easements.

Spotlight: The Meadoway – How It Works

Despite its increasing popularity, it is important to unpack the institutional framework enabling The Meadoway's creation. The hydro-corridor land is owned by Infrastructure Ontario. Through a statutory easement, it is managed by Hydro One. There is a Master Park License Agreement (MPLA) between Hydro One and the City of Toronto to permit building and maintaining infrastructure. (C. Wells, P. Communication, 2021) The City pays fees. A MPLA is useful since re-zoning is required in its absence. Meanwhile, Enbridge has not made a monetary contribution to the Meadoway. (C. Wells, P. Communication, 2021)

Case Example: The Meadoway (Toronto)

A senior project manager at the Toronto Region Conservation Authority shared the details with us about the Meadoway project. This is a renaturalized meadow in Scarborough's Gatineau Hydro Corridor stretching from Rouge National Urban Park to the Don River. The TRCA was awarded funding from the Weston Family Foundation in 2016 as part of a pilot project aimed at converting 2.5 km of the Gatineau Hydro Corridor into meadow habitat. Due to the success of the pilot, the broader Meadoway project was launched in 2018 in partnership with TRCA, the Weston Family Foundation, Hydro One, and the City of Toronto. (The Meadoway, 2019)

The Meadoway has a total proposed budget of \$65 million, with the City of Toronto committing \$6.2 million from 2018–2020 as part of their existing budgets to support trail implementation. (City of Toronto, 2021a) The Weston Family Foundation committed \$10 million to TRCA to fulfill Phase 1 of the Project, with an additional \$15 million pledged by the Foundation for Phase 2. This pledge was made with the understanding that additional funds would be secured from other sources as leverage for overall project delivery. TRCA and the City are in the process of seeking funds from Provincial and Federal sources.

Economic Development

Business Incubators/Accelerators/Bio-Prospecting

Support for biodiversity conservation can include incubator services and seed funding as part of parkland acquisition. Examples of such interventions could include planting pawpaw trees in a savannah of a Toronto park or firms facilitating salmon spawning in the Don River. Restoration can thus be seen as both an economic development policy and a tourism investment. Such interventions can underscore the business case for biodiversity conservation. Furthermore, a surcharge can be placed on the proceeds from businesses benefiting from using ecologically important parks. Alternatively, the City can take equity in a firm and take a portion of the profits. The funds generated from the surcharges or profits can be dedicated to financing parks' operations and maintenance.

Establishing vertical integration ("verticals"), where municipalities own or control the supply, distribution and sales of local plants and foods, is a way to restore ecologies in the Greater Golden Horseshoe. (P. communication, 2021) It is possible that it is a less costly intervention when considering it through a lifecycle analysis / total cost of ownership assessment, compared to a capital project dedicated to restoration, for instance. (P. communication, 2021) There is already knowledge and expertise in business incubation and acceleration in southern Ontario that was strengthened after the Great Recession of 2008–2009. For instance, the MaRS Discovery District has built capacity in guiding start-ups, particularly after the Great Recession. Applying these tools to biodiversity conservation can help establish new businesses as well as restore local and threatened plant species. It could go beyond serving economic development policy ends and help to attract tourism.

Spotlight: Alderville Black Oak Savanna (Northumberland County)

This organization is restoring rare grassland species and habitats, which also serve as carbon sinks. The Indigenous community is currently building a greenhouse. (P. communication, 2021) Over the past 20 years, this site has been restored and is now the largest intact tract of native grassland habitat in Eastern Ontario. (Alderville Savanna, 2019)

Tax Increment Financing

Tax increment financing (TIF) emerged in the U.S. in the 20th-century as a public financing tool to subsidize redevelopment. It was originally intended to be used to stimulate private investment in blighted areas to facilitate community revitalization. (Caves, 2004) The municipality provides developers with deferrals on property tax payments on the site for a defined period of time, e.g. 5 or 10 years. A tax increment district (TID) will usually be defined as the area, where the impacted properties are located. Once property tax payments kick in, the assessed value of the redeveloped site and its surrounding ones have increased in value. Thus, the municipality can collect the increased property tax payments. Chicago's iconic Millennium Park was partly funded through TIF. (Erickson & Witten, 2006)

TIF's application has been criticized for subsidizing real estate developers and for municipalities placing districts, where development was probably to occur. As well, it has been linked to causing gentrification in the neighbourhoods it was likely meant to help. It is important to avoid doing TIFs in areas where development would have occurred, anyway. TIFs can also be structured to prevent gentrification from occurring. Lastly, the tax deferrals from TIF have been criticized because municipal spending is likely to grow without commensurate revenues for the TID during the deferral period. This is a result of the increase in infrastructure that needs to be serviced. The City of Hamilton's ERASE Redevelopment Grant Program is a tax income equivalent grant program (TIEG), a variation of a TIF, and may offer a model that addresses this criticism. **(see Spotlight)**

Spotlight: Tax Increment Equivalent Grant – The City of Hamilton's ERASE Redevelopment Grant Program

This is a municipal tax increment grant program for brownfields redevelopment that has been lauded for its uptake. The main difference from conventional TIFs is that property owners must still pay a percentage of property tax annually over a 5–10 year period. The ERASE program provides grants to property owners who redevelop sites with grants equal to 80% of the increase in the municipal portion of property taxes for up to 10 years. From 2004 to 2015, the Hamilton Tax Increment Grant Program provided over \$5.4 million in combined grants to 24 projects. (City of Hamilton, 2016)

The Province of Ontario passed legislation allowing TIF in 2007, however there have been no regulations provided. (Amborski, 2021) TIF could be structured to provide fees for parkland acquisition in areas of Toronto that have been identified with biodiversity significance. It could incentivize development next to such a park space. (see Case Example on Community Revitalization Levies in Alberta) Depending on the development's nature, this could run counter to the aims of strengthening biodiversity protections through increasing parklands in Toronto. An added challenge of using TIF will be to set covenants directed at preventing gentrification as a result of the redevelopment, particularly if TIF is used in an underprivileged neighbourhood.

Case Study: Community Revitalization Levies – City of Edmonton Parks

The Province of Alberta's Community Revitalization Levy allows municipalities to borrow against future property tax revenues to help pay for infrastructure to facilitate development in an area. (Government of Alberta, 2022) This tool can be used to address socio-economic and environmental issues. (Government of Alberta, 2022) The City of Edmonton is using CRLs to help build parks and green spaces. Kinistinâw Park, The Armature and Warehouse Central Park have been or are being built with CRLs. **(See Figure 12 for pictures)** Although a biodiversity component has not been applied to these parks yet, the City of Edmonton has well-regarded biodiversity strategies. Alberta's Municipal Government Act identifies park and environmental reserve dedication regulations, cash in lieu requirements, etc.

Figure 12: Kinistinâw Park and The Armature (Edmonton)



Top: Kinistinâw Park, Bottom: The Armature (Source: City of Edmonton)

Transferable Development Rights (TDR)

A transfer of development rights (TDR) is a market-based tool used by municipalities to acquire parkland. It is a method to shift the development potential from one piece of property to another piece of property (Tavares, 2003 as cited in Erickson & Witten, 2006). The establishment of a TDR program requires the designation of sending and receiving zones. (Erickson & Witten, 2006) TDR's shift the future development potential from one piece of property to another piece of property. (Bredin, 2000 as cited in Erickson & Witten, 2006) TDR's can be used in Toronto to protect areas of biodiversity significance that are at risk of being developed. Similar to the concerns regarding wildlife bonds and sustainability-linked bonds, if TDR is implemented, safeguards must be considered to reduce the risks of perverse incentives.

Tax Credits for Conservation Covenants

Tax credits for conservation covenants can be created by the province or, possibly, the City of Toronto. This could create a marketplace for tax credits for trading conservation covenants, where those with no tax liabilities can sell to those who can use the credit. (Kosciolek et al, 2020) This can raise funds for parkland acquisition and/or their maintenance and operations. The State of Colorado has generated USD 1 billion in tax credits since 2000 and permanently protected 0.7 million hectares of conservation land. (Kosciolek et al, 2020) However, not all of these credits in the U.S. are tradeable and it is only in a few states, where they can be traded. (P. Communication, 2021)

Land Value Capture: Public Land Leasing

Public land leasing is a long-term value capture tool that has been used along the Toronto Port Lands. It keeps property in public hands and captures economic rents, maximizing underutilized land by increasing their value. (David Amborski, n.d.) This tool has been used in Amsterdam, Hong Kong and Boston. Land leasing benefits the public sector, who benefits from land value increases. (David Amborski, n.d.) Another benefit of public ownership is that the planning principles for a given area can be maintained. (David Amborski, n.d.) For instance, Boston's Commonwealth Flats includes a park. Thus, Toronto can ensure biodiverse space is built in a site with public land leasing.

Public land leasing could provide a long-term revenue stream for the City. A portion of the proceeds of fees or taxes could be dedicated towards funding parkland acquisitions with a biodiversity conservation focus and/or the operations and maintenance of Toronto's public parks. The incidence of value capture levies like public land leasing proceeds for biodiversity conservation may fall on the property leaseholder. To ensure that such a levy is well-utilized, its intended purpose and how the proceeds are used towards furthering biodiversity conservation would have to be clearly disclosed. Otherwise, it would risk becoming a tax for leaseholders.

Land Value Capture: Air Rights

Air rights above a property can be sold or transferred to allow for increased density. This concept is being used by the ORCA development above the rail tracks between Bathurst St. and Blue Jays Way in Toronto. CRAFT states that they bought the air rights in 2013. (Bozikovic, 2021) The proposal has a large park, but its air rights exempt it from the City's parkland dedication policy, according to the Local Planning Appeal Tribunal (LPAT). (Novae Res Urbis – Toronto, 2021) A request for qualification on air rights at a high-density mixed-use with transit integrated at a corner lot in Toronto's 433 Front St. West was advertised by Metrolinx in the November 10, 2021 edition of Novae Res Urbis

Moving from Financial Tools to Practice

After an exhaustive analysis of the financial tools, the next phase was to interview practitioners. Phase I was the researching the financial tools. Phase II was to interview practitioners, the purpose of which was to investigate the financial tools and explore their relevance to biodiversity conservation through urban parkland acquisition. We interviewed six people (2 real estate, 3 municipal, and 1 civil society). They were chosen strategically to offer broad disciplinary and sector perspectives on the initial themes of: parkland dedication rate, using existing funds for biodiversity and equity-seeking groups in the parkland acquisition process, and the use of new financial tools.

Practitioner Interviews: Themes

This section is organized into a Major Themes section, that expands on the top issues raised during the six interviews. See Appendix 4 for the Coding Tally. For a short list of themes, please see **Table 6**. For a theme to be included as a Major Theme, it would have to be tallied at least five times. For certain Major Themes like “Public Awareness”, they included “Public Support” and “Public Frustration” since similar issues were being raised, but it would have more strength if these ideas were brought together. The Emergent Themes section had unanticipated themes that emerged during the research process. Novel concepts were raised during the interviews, which were identified as worthy of pursuit out of this MRP.

Table 6: List of Themes and Novel Concepts

Major Themes	Emergent Themes	Combined Themes	Novel Concepts
<ul style="list-style-type: none"> Challenges Cash-in-lieu Real estate sector Process Natural capital Public awareness 	<ul style="list-style-type: none"> Ward System Transaction Model 	<ul style="list-style-type: none"> Public awareness included: <ul style="list-style-type: none"> Public support Public frustration Challenges included: <ul style="list-style-type: none"> Nimbleness Ideologies Density vs. Size City Communications Lack of Expertise 	<ul style="list-style-type: none"> Update Parks Linear Parks Opportunities Pilot Projects

Major Theme #1: Challenges

Challenges are numerous on using existing funds and processes at the City of Toronto. They were raised by municipal employees, private sector developers and civil society. A pressing issue was the “Density vs. Size” challenge inherent in the current Alternative Parkland Dedication Rate. Comments by municipal employees highlighted the importance of updating this rate, which is currently happening. A Senior Manager for the City of Toronto PFR in 2021 said:

“We are capturing parkland based on how large a footprint the property has rather than how many new people are being introduced to the city and it's the people who are actually putting pressure on the park system, not the building itself...There's a fundamental disconnect between the pressure being put on the parkland system and the amount of parkland we're actually securing from the development process.”

This senior manager continued by pointing out: “Because we cap based on site size, past a certain level of density, we are not capturing any of that density from a parkland perspective, right?” Similar sentiments were expressed by a project manager in the City of Toronto PFR: “The parkland dedication rate is falling short. It's not responding to growth and density such that, you know, higher density developments and areas of the city that are intensifying rapidly. The parkland dedication rate is not capturing that density.”

General challenges exist with the Alternative Parkland Dedication Rate and cash-in-lieu mechanism. They include the difficulties in purchasing parkland where it's needed. The PFR Project Manager points out challenges with the current régime:

“The primary challenge is that the land costs so much money that for someone like me, I'm really challenged to be able to purchase it. And, there's a timing of the development, which means that when the development comes forward there's a certain valuation. There's cash-in-lieu to be collected then, you know there's a certain calculation there, and the money is transferred to the city. But, it's a while later before the money is secured and I'm able to actually go out and identify parkland and try and purchase park-

land. By then, I can't afford the parkland in that area. So, we never have enough funds for cash-in-lieu and we're never able to get land dedication, where we need it because they're just simply isn't enough land and the development sites are too small for the proper dedication.” (Toronto PFR Project Manager, 2022)

The sincerity expressed by the Senior Manager and Project Manager at PFR in highlighting the challenges regarding density vs. size and acquiring parkland where needed was encouraging. It showed a readiness among municipal officials to re-examine the rate so, that it yields increased parkland. It also provides an opportunity to prioritize biodiversity in their deliberations over where parkland is acquired in the future using the new rate. This can also be prioritized if and when the cash-in-lieu mechanism is updated.

There are challenges with how quickly the City can move to acquire parkland, which demand re-examination beyond the current update of the Alternative Parkland Dedication Rate. When asked about considering the use of new financial tools for parkland acquisition, the senior manager said: “I would say flexibility for the City of Toronto to develop its own financial tools that could also fund parkland would be great. I also think greater support from other levels of government would support the city... Because we have more pressures and more capital needs on the parkland system than we have available resources to address them.” Meanwhile, a Project Manager with PFR said: “We can't leverage Section 42 to buy land – cash in lieu – to buy land where we need it because the cost of land is so significant.”

We also heard about challenges from the perspectives of real estate developers and a civil society representative. A former manager at an ENGO expressed frustration over the complexity of the City's Parkland Dedication Rate:

I would say entirely illegible to the general public. I mean it's almost entirely illegible to me. I've spent months, years trying to kind of untangle the different pots of money and the different policies, how they were divided up, how to spend... Just knowing how much money is in the bank doesn't really tell anybody anything about the priorities of the City or how that money got there, how that connects with their own lives. (Former Manager at an ENGO, 2022)

Major Theme #2: Vision & Transaction

“Vision” and “Transaction” stood out as notable and similar themes that could be combined. They stemmed from comments from real estate representatives criticizing the Parkland Dedication Rate process with the City of Toronto. We heard from a Vice President at a Toronto real estate developer, and Vice President at a GTHA real estate developer. In response to the question about the current parkland dedication rate and what it's missing, the VP of the Toronto developer said: “I think there could be more vision brought to the City's idea of parkland. I think you see a lot of uber oversized deve-

lopments with a lot of green grass next to them and I don't think that's exactly the greatest...I think this vision is missing, I think it becomes a transaction with – like a thoughtless transaction.”

When asked about prioritizing biodiversity and access to equity-seeking groups as part of the parkland dedication rate, the VP of the Toronto developer highlighted changing societal views on parks. They said: “What's missing is vision and input, right? Cities and their staff and even city dwellers, for that matter, think of park – and I've heard this from Councillors before – they think of park as green grass and that being enough. Actually, I think what we're seeing more and more is the value of green space... When it's just a transaction we forget about all the important ingredients.” A similar point is echoed by the Vice President at a GTHA real estate developer when they said: “Nine times out of 10, you're just handing them [the City of Toronto] over money and saying: ‘Okay my box is checked.’ And, really from there, it's really in their hands. So, you don't really know where that money is going.”

To the question about gaps that exist in the current parkland acquisition process and how it can be improved, the VP of the Toronto developer raised the need of including a wider group of people in the process. They said: “How can it be improved is really about having the vision and looking at it through the lens of a broad spectrum of people I think is what's important.” Their comments highlight the opportunity for PFR staff and enlightened real estate developers to engage a broader community to support bolder, biodiverse visions of green space.

Major Theme #3: Cash-in-lieu

There are challenges inherent with the current structuring of the cash-in-lieu rate. The PFR senior manager explains how the cash-in-lieu process works:

“When we collect cash-in-lieu of parkland, it's distributed into a number of different reserve funds, which have specific purposes. Those purposes are sometimes geographically limited, which means that although we're collecting a significant portion of funds from the top-level payment from a development application but, that gets diluted into the different reserve funds. Although we have policies saying that we can pull from those reserve funds for a strategic objective or for a park purchase with city-wide benefit, for example, you still need to go to the Council approval to get authority to pull those funds from different pots of money and pool it together for a bigger purchase, which creates a longer horizon of actually purchasing that land.” (Toronto PFR Senior Manager, 2021)

However, the PFR Senior Manager pointed out the opportunity that exists for reconsidering how it works, stating:

“There is an opportunity to consider or review whether the Cash-in-lieu of Allocation Policy is still serving its intended purpose in 2021 and beyond. As we were redeveloping this new alternative rate [Alternative Parkland Dedication Rate], and trying to address the challenges with the current alternative rate, I think it's in our interest as a city to re-evaluate whether that Cash-in-lieu Allocation Policy is still appropriate in the new context we have as a city. I want to stress that it's not currently under review as part of our broader project. But, I think that there is a follow-up phase of work that could consider whether we want to re-evaluate that.” (Toronto PFR Senior Manager, 2021)

The PFR senior manager's comments would not be just beneficial for the PFR budget, but also to build trust in the department's accountability. The Vice President at the GTHA real estate developer stated:

“There's nine times out of 10 the City of Toronto, for example, or Vancouver etc., they don't ask you for parkland because they have some pretty significant limitations around where parkland needs to go. So, a lot of the times the Parks Department and/or the Real Estate Department would prefer the cash-in-lieu because they can't – they don't want to put their maintenance fees to something that really isn't that significant in size. They would rather you dedicate it through a section 37 through a POPs [Privately-Owned Publicly Accessible Spaces].” (Vice President at GTHA real estate developer, 2022)

Their comments indicate the challenges of tight PFR budgets if there is a preference to forego. They also add pressure for the City to re-examine the Cash-in-lieu Allocation Policy as well as the Byzantine processes for using parkland reserve funds. The time may be ripe given that the City is already reviewing its Alternative Parkland Dedication Rate and the new Community Benefits Charge, which replaces Section 37 of the Planning Act and municipalities will have to comply with by September 18, 2022.

Major Theme #4: Process

I heard numerous complaints about the complex process that exists for using reserve funds collected from the Cash-in-lieu mechanism. When Cash-in-lieu funds are received by the City, they are transferred into several reserve funds. City staff reported an uncommitted balance of \$207,460,572 as of December 31, 2019 when Section 42 CIL exceeded 5% (Above 5%). This is also known as the Alternative Parkland Dedication Reserve Fund. When combined with the Parkland Acquisition Reserve Funds, the amount increases to \$221,899,012.

However, there are numerous obstacles for disbursing these funds for actions like parkland acquisition. Certain obstacles include the City needing to “save” up to the full amount before it can purchase a property since it cannot finance a transaction. The PFR Project Manager says:

“So, with purchases we just never have enough funds. We can't leverage Section 42 to buy land – cash in lieu – to buy land where we need it because the cost of land is so significant. And, then, there's a major thing, which is that the City can't be as nimble as a private buyer or developer. There are limitations on the amount of money that I'm authorized to spend without Council approval, for example. There are limitations on how I can bid for property that are outlined in the Municipal Act. I'm bound to fair value. I can't exceed a certain bid based on an appraisal. And, I'm often outbid for properties because I can't react and have obligations as a City employee and under the Municipal Act and through Council that other buyers wouldn't have.” (Toronto PFR Project Manager, 2022)

The gap between the rules that the City has versus the private sector for purchasing land was heard numerous times. The PFR Senior Manager said: “Oftentimes, we just can't spend the money as quickly and efficiently as private actors can and it means we lose out on opportunities where we could purchase land.” The ex-ENG0 Manager echoed these points: “It's virtually impossible for the City to compete with real estate developers at the speed that they can move at. The money that they have. It just seems like an extreme uphill, if not an impossible battle in Toronto, to acquire new real estate in certain neighborhoods to create new parks.” The PFR Project Manager stated how the City's rules can cause difficulties: “Sometimes it's difficult to identify the right way to spend the funds following all the rules that do exist. It's just hard to find a piece of property in a high growth area that I can afford that's within two kilometres or five kilometres or development or whatever it is.”

The contrast with the real estate sector is worth examining closely because it offers insights that the City can use to speed up the parkland acquisition process. Some City employees expressed an openness to this, however they also recognize that rules to ensure fiscal responsibility exist for a reason and should be respected. The PFR Project Manager said:

“We have quite a few processes in terms of how we go about purchasing a park or getting Council approval to spend funds. I'll just say at a high level that there's always room for improvement with those processes to make us more nimble because of what I said about how important it is to act quickly. So, those are things I'm constantly trying to improve. It's very difficult, with a city the size of Toronto to get decisions made in a timely manner, and it may result in losing opportunities for acquisition.” (Toronto PFR Project Manager, 2022)

Meanwhile, the PFR Senior Manager expressed an openness to look at other ways of improving the process:

“An option could be more delegated authority. So, for example City Council could authorize staff to make decisions without Council approval, based on a certain amount of money being spent. Right? So they could say: ‘Staff, you have authority to spend up to

X amount of dollars without requiring approval by the City Council,' I should say the limits right now are fairly low, especially in the context of us buying a piece of land for millions of dollars. That's not a level of money we have delegated authority to spend. Does Council have the option potentially to give us greater delegated authority? Sure. Is that something that I would advocate for? I can't say that right now. I'd have to look into it more carefully and we'd have to do our due diligence...But, it's a trade-off to that accountability and that transparency side of things that is also a very ethical consideration, that we need to make as public servants and as planners, right? Serving the public interest isn't just about accomplishing objectives. It's about having faith in how that decision was made in the first place." (Toronto PFR Senior Manager, 2021)

Frustration expressed by a VP at a GTHA real estate developer indicate that there is support among this stakeholder for the City to improve its cash-in-lieu and parkland acquisition processes. The latter person said: "They [the City] need to hire more experienced people in their real estate department. They need to almost create an acquisitions department, specifically with people who are nimble enough to actually go through acquisitions. They can't do that right now. They can't possibly get Council approval, Committee approval on everything, budget this, that, the other, and actually go and secure land before somebody else goes and snatches it up for something else because they're just not nimble enough. So, we need to find ways to like partner with. Either partner with or do it in-house better."

However, culture at PFR may be an impediment for nimbler processes if we apply the ex-ENGO Manager's assessment on the potential of using new financial tools. He said: "So, this isn't a slight against them, but, it [PFR] is not like known as the most innovative City department and one willing to try new things, and things like that. So, I think that might be the biggest hurdle on the City staff and management side, is just the openness to try and some kind of new financial instrument, the complexity of those instruments and communicating it to the public, as well, right?" Later on, he described a broader cultural factor that could serve as another impediment causing further delays in parkland being acquired faster. He said: "Honestly, there's also – more so in Canada than the United States, for sure – a reticence like a wary eye cast to anything that involves private investment in parks or bringing in more private investment. So, I think that would be another challenge from a public perception point of view."

Major Theme #5: Public Awareness

It is encouraging that interviewed City employees and real estate developers are interested in nimbler processes and simpler rules for using parkland reserve funds towards parkland acquisition. Public buy-in will be vital for any successful change to occur. This includes the average city dweller, who is not well-versed on municipal affairs to the most sophisticated segments of the population.

In responding to how much public awareness exists about the parkland dedication rate, an Acting Manager at PFR, stated: “I don't think the general public is aware of that or they may be aware at the very periphery level that there's a need for parkland and one of the ways you get it is through new development application.” The ex-ENG0 Manager underscored the challenge: “People I've met – even people who are really well-versed in City issues – just don't know that there's even a mandate for developments to contribute to green space in the city. And, the fact that people don't know that basic fact about how development's done and how green spaces are built tells you there's something wrong with the system.”

When asked how much public understanding exists for parkland acquisition, the Acting Manager at PFR said: “It's kind of one of those things that people really want and appreciate. The parks. I don't know if they're aware of the complexity of the process or what they need to advocate for, in terms of legislative change or knowledge. That is certainly something that people will speak about...” This is unfortunate because public support for parks exists for parks, but a lack of engaging the public on it may be hampering planners who would like to see improvements to the process and rules around parkland acquisition. Otherwise, there is friction in these engagements.

A case in point may be when condominiums are being built and members of the public may not see increases in green space. The ex-ENG0 Manager said: “The City hasn't communicated what they're doing to address parks and public space needs at a city level on a neighborhood level. So, there's an obvious disconnect there. It leads to a lot of anger in the public and anger towards developments that we might need for housing, actually. We need better and more clear communication from the City with no jargon at all around the challenges and priorities that we're seeing.”

Major Theme #6: Natural Capital

The quantitative value of natural capital is gaining increasing recognition by financial markets and entities like the Public Sector Accounting Board in Canada. There was interest on this issue with interviewees across sectors. However, this is a nascent field in planning and real estate, indicating both an opportunity and a challenge of applying it in practice. The PFR senior manager said: “Given the economic system within which we all operate, the logic of said system derives value when it can be quantified in the economic terms that serve that system. If we accept that to be true then, valuing our natural spaces according to those terms, can only better inform how those spaces should be valued from a monetary perspective.”

However, institutional and regulatory challenges in the profession exist for instituting natural valuation practices. The PFR senior manager said:

“The primary challenge there is most at – to my knowledge – most appraisal processes, consider what’s called the highest and best use of that land. Generally speaking, highest and best use often is development in terms of development of buildings. It is difficult to value a park space for highest and best use when its highest and best use is parkland. So, then the argument would be made: ‘Well, could this site be more valuable if it had more trees on it? Could this park space be more valuable if it had bioswales or pollinator gardens, etc?’ That would be an interesting wrinkle to explore as this comes forward. But, I would say it is a City objectives to better understand the ecosystem services and the natural value of our parks and open space system.”

The VP at the Toronto developer also spoke to the challenges of making the case for nature: “Anytime you do have natural assets that can help mitigate other things like that [stormwater]. So, for example, discharge, stormwater discharge rates, right? There are ways to be thinking more innovatively about the value of some of these things. But, again, it’s complicated, right? And, you’re sort of arguing them as they get or don’t get value engineered out of projects.”

To this point, the VP of a GTHA real estate company said:

“Most developers – if i’m speaking very honestly – if there is any environmentally significant something that has been regulated provincially, a lot of times you want to go in very slowly and making sure that you’re beefing up your costs for the regulation and the study that you’re going to be required to do. And, you want to make sure that your development is of a setback that’s reasonable and actually through that study try and grind it down. I know it sounds awful but you want to assume the worst and then go and do the kind of study through it and assume the cost of that.”

However, real estate sector interviewees recognized the market value to homebuyers of proximity or integration to nature. The VP of the Toronto developer said: “In the case of one project I’m thinking about, we’ll pay above and beyond a base park, right? And, that’s to your earlier question is about value to the project. Well, why do we want to do that? Because we think that there’s huge amount of value in creating an amazing park, and to maybe our commercial strategy.”

Similarly, the VP of the GTHA real estate developer said:

“Things like access to woodlots or multi-use trails or parks or waterfront or all sorts of different types of amenities in that way, shape or form, does boost value. It’s well-known that streets that are tree-lined, the housing prices are higher... In the same way that we want to be close to transit, we want to be close to environmental features, as well, and there is value to that. But, it’s a delicate dance about how can you preserve this via like biodiversity itself but also build housing next to it, because people want to be by it.”

The importance of valuing nature in quantifiable terms is important beyond land market economics, but serves an important function for replacing what's lost in natural disasters. In her previous role at the Government of Ontario, the PFR project manager had to appraise natural assets lost in ice storms in Toronto during the 2010s. They said: "I evaluated municipal claims for damages on the ice storm and a lot of it was based on how do you value a tree canopy or that sort of thing." Referring to her forestry colleagues, the PFR Project Manager said:

"They've done a lot of work on estimating ecosystem value or some of the natural value accounting of the City's forest canopy and ravine areas. Our ravine areas are tricky because they not only are important as for their own intrinsic value but they're super important for infrastructure. And so there's [a] natural management component of that... they have a stormwater management function...But, we also site our own water pipelines and wastewater and infrastructure through those because they're financed through the City...But, anyway, it's tricky in a city like Toronto to do that natural valuation." (PFR Project Manager, 2022)

There is an understanding of nature's value, but the language used by planners may be different. When asked about her views on prioritizing biodiversity conservation and park access to equity-seeking groups as part of the new parkland dedication rate, part of her answer was: "Sometimes the value inherent value is just to protect the natural heritage. To acquire it just for that value." The questionnaire changed to include a question about natural capital valuation after interviewing the PFR Acting Manager. However, it was evident in my interview that the PFR Acting Manager has an intimate understanding of the value of natural capital. Her team helped PFR with the Ravine Strategy, the Biodiversity Strategy, and natural heritage protection. The current discourse on natural capital and the PFR Acting Manager's priorities align, but the words are different. There is an opportunity to share the latest knowledge and discourse with experienced planners like the PFR Acting Manager to bolster the impact of their work.

Major Theme #7: Ward vs. City-Wide Tension

The rules for disbursing cash reserve funds for parkland acquisition include restrictions on how much can be spent within the ward of a project and city-wide. The tension between ward versus city-wide priorities was raised in interviews. The ex-ENG0 manager said:

"We have this very fragmented system of political leadership in the city. I come from Vancouver, where all the Councillors are elected at-large. That has its own issues, of course but, here in the Ward system – Yes, you got these Councillors who are focused on very hyperlocal issues, which can be great – But, from kind of a park building perspective and thinking about investing in parks and long-term infrastructure, where some of those spaces might cross multi-year projects or cross-ward boundaries, you lose out on that city vision. Or, even a neighborhood or district vision. And, you've got this very compartmentalized kind of thinking around parks in Toronto." (Ex-ENG0 Manager, 2022)

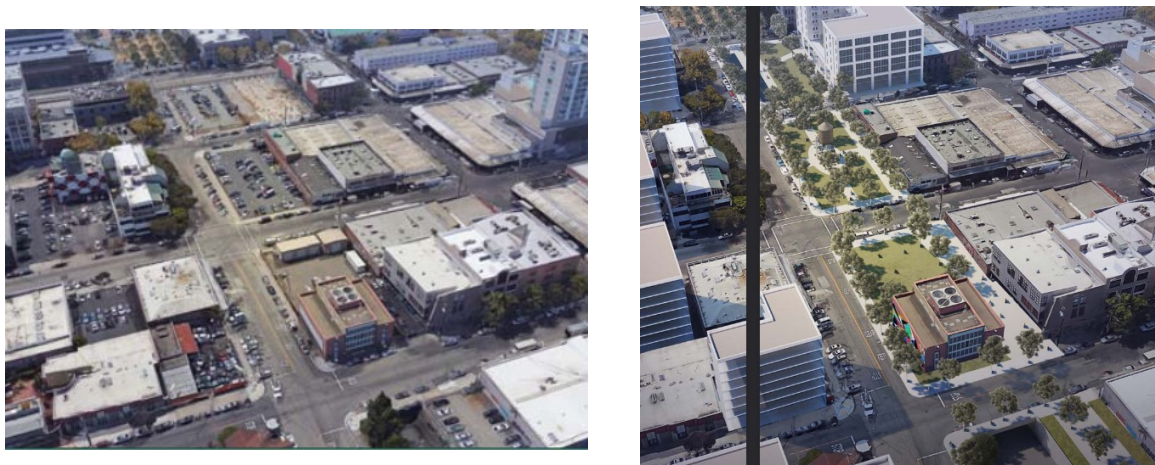
In talking about Section 37, which is sometimes used for park funding, the VP of a GTHA real estate developer said: “What ends up happening right now is your Section 37 is for the Ward itself and so, now all of a sudden you'll see sections of the city that are getting all sorts of new stuff for lack of better words. But, it's because it's attractive from a market standpoint to develop here, but the CAC [Community Benefits Charge] should really be a city community benefit where it goes across and where it is needed the most.”

Emergent Themes

Unexpected themes and ideas emerged in my interviews that are categorized together here. Linear parks, where public right-of-ways and public space are used for park space, was raised by the ex-ENGO manager. “We can actually create more useful green spaces, more linear parks, more places for biodiversity in some of our inner-city neighborhoods right next to our suburbs by thinking about streets as an opportunity,” said the ex-ENGO Manager. **(See Figure 13 for a proposed linear park in Oakland, California, USA)** He also raised the idea of upgrading existing parks instead of buying new properties. The ex-ENGO Manager said: “So, if we have \$200 million in the bank, it costs so much, it doesn't cost much less to renovate an existing park than when it would to purchase land. Especially in some of the downtown neighborhoods or other areas that are really built on. So, why don't we make our parks, you know, update them? Make them more beautiful. Connect them. Make them more useful to people. Focus on areas where we can improve the biodiversity in the parks that we already have.”

A theme in my conversation with the ex-ENGO Manager was the opportunities that exist for planners to approach parkland acquisition and interventions differently. The public can be won over through pilot projects. “For parks, we've lived too much in this heavy policy area and we need to actually see some things happening on the ground. Working in local communities and at the neighborhood level to put in these quick wins and pilot projects and test things on the ground. So, people can feel like their neighborhood is improving in the public space at the same time as it's developed I think would go a really long way to bringing people more along in this conversation.”

Figure 13: Linear Park Proposal in Oakland, California, USA



Source: Dover, Kohl & Partners

Stakeholder Mapping & Partner Identification

The City of Toronto Indigenous Affairs Office

We had an initial conversation with the IAO in August 2021 to explore the possibility of a partnership. These conversations are at early stages. An ICPA could represent a powerful avenue to address Truth and Reconciliation Commission (TRC's) as well as biodiversity conservation. Regarding the former, it could help to fulfill the TRC's Call to Action #43 asking municipal government to fully adopt and implement the United Nations Declaration on the Rights of Indigenous Peoples as a framework for reconciliation. (Truth and Reconciliation Commission of Canada, 2015)

We are heartened by how the City of Edmonton's Integrated Infrastructure Services department, where its parks division is housed, have engaged Indigenous peoples. The Treaty 6 nation and Métis have been engaged in capital projects to ensure that they speak to Indigenous culture, e.g. plants and integrating Indigenous knowledge and storytelling. (N. Roth, P. Communication, 2021) There is even an art piece speaking to Missing and Murdered Indigenous Women and Girls.

Indigenous groups like Mississaugas of the Credit First Nation must be included as part of the conversation. There is potential for a respectful partnership that can help parkland acquisitions gain greater support. It would align with the interests of parks planners, who want more park space. The importance of establishing a connection with the Indigenous history and culture of the land is largely missing from this conversation. It was only raised once by the VP at a Toronto developer in the interviews. Referring to prioritizing biodiversity as part of the parkland dedication rate, she said: "Even from an Indigenous point of view, there's a lot of value and to biodiversity and conservation."

Mississaugas of the Credit First Nation

This is the closest Indigenous nation to the City of Toronto. We have contacted their office. We are interested in following-up and having the chance to speak with them.

Greenbelt Foundation

This organization has knowledge about areas of biodiversity interest in the region. It also has experience in local projects to protect biodiversity. The organization would be well-positioned to provide advice on what should be prioritized regarding BDC and how funding tools can be implemented.

Real Estate Developers

As demonstrated by the tools illustrated above, we are not expecting the development industry to foot the entire bill for funding biodiversity conservation. There are real estate developers, who may see the upside of increased biodiversity for their projects. This is a stakeholder that we would like to engage further in the future.

Toronto Region Conservation Authority (TRCA)

The regional experts in watershed management. A provincial review of their mandates may see their engagement in biodiversity conservation constrained by fears of seeing such activities as being non-mandatory in the future. (Mitani, 2021b) Thus, the TRCA may be too scared to take any action. Nevertheless, their expertise on areas of biodiversity conservation interest cannot be overlooked and must be engaged.

Park People

This NGO is focused on raising the profile of parks and their advocacy in the City of Toronto. They are building relationships with equity-deserving groups interested in parks. Park People is an excellent stakeholder to have at the table for increasing parkland acquisition because of the potential of building popular support for this initiative through their networks.

Gaps

Equity

According to City of Toronto staff, there are parks with biodiversity potential that are located close to equity-seeking groups. However, the parks' access and benefits are sometimes not felt by these groups. For instance, some parks located close to these groups may not be as well-kept as those in wealthier areas. Centring equity-seeking groups in the biodiversity conservation conversation on parks in Toronto is important for building wider public policy support for parkland acquisition, particularly in suburbs. It is worth noting that the City of Toronto states that an equity lens was applied in its Parkland Strategy by putting the voices of under-served and equity-seeking communities at the forefront. (City of Toronto Parks Forestry and Recreation, 2019)

Equity did not come up often in the interviews despite the Parkland Strategy having an equity lens. Nevertheless, there is an awareness around the importance of this issue among certain interviewees like the PFR senior manager. "Those [equity] criteria in the Parkland Strategy define what we call: 'areas of parkland need'. The primary lens...the first cut of the criteria is areas of the city that are below the low parkland provision

threshold, which is 12 sq. metres per person... So, where there is low parkland and there is a high incidence of low-income folks, that is supposed to steer our spending of parkland acquisition funds.” The next iteration of this work must explore support among equity-seeking groups. It is not only a matter of providing these groups with greater and better access to parks but, applying the pandemic’s lessons of the importance of access to natural spaces. Equity-deserving groups are also key stakeholders for ensuring that there is popular support for parkland acquisition initiatives. This can sustain public attention on the issue whenever interest among investors and civil servants wanes and encourage the better use of reserve funds and of new financial tools. These groups can offer ideas that have not yet been thought of and a level of public support that can tip the scales in favour of faster parkland acquisition.

Financial Literacy

Among the public policy, government and scientific communities, there is generally a low-level of awareness of financial tools that could be used towards conservation or parkland acquisition purposes. This has been noticed through my interview experiences and literature review. The academic literature on conservation finance in urban areas is not timely. However, there was openness among parks planners in Toronto and across Canada. I have also encountered ideological barriers among certain parks planners. This will be a challenge to overcome to ensure wide-ranging and successful uptake of novel financial tools for parkland acquisition. Our recommendations include increased collaboration between the City’s Parks, Forestry & Recreation as well as Finance & Administration departments.

Biodiversity Literacy

To a lesser degree, there is an issue with environmental literacy within the financial community. However, there has been a strong trend towards investment professionals taking an interest in ESG/responsible investment (RI). This has been seen in my observation of numerous staff positions at financial institutions being created for ESG/RI roles in recent years. As a result, this has led to ESG/RI financial products being created. According to the Responsible Investment Association of Canada, Canadian Responsible Investment Assets were CAD 3.16 trillion in 2019, representing 48% growth over two years. (Responsible Investment Association, 2020) Thus, an expertise has been developed on general environmental topics and the roles that investors can play. Nevertheless, the uptake on biodiversity conservation finance has not yet been as robust in Canada when compared with steps taken by French and UK investors. Nevertheless, events like the NCC’s Making Nature Investable Summit in May 2021 are steps in the right direction.

Conclusion

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This report comes at an opportune moment for parkland acquisition in Toronto. The Province of Ontario has directed the City to review its park dedication rate policy and enact a new by-law before September 18, 2022 in order to continue collecting CIL. Social equity and biodiversity conservation are top of mind for policymakers. Investor interest in nature is rising. Provincial and municipal elections are on the horizon. This topic can be raised as an issue of concern in those elections. The time is now for the City of Toronto to prioritize biodiversity conservation as part of its cash-in-lieu allocation policy. It can contribute materially and culturally towards Canada's achievement of its Convention on Biodiversity Targets. The City can free up its reserve funds and use them towards biodiversity conservation in parkland acquisition. The uncommitted balance in the Parkland Acquisition Reserve Funds and Alternative Parkland Dedication Reserve Fund totaled \$221,899,012 as of December 31, 2019. These are funds that can be used for increased parkland acquisition.

Section 42 is a powerful tool. Why not amend it to unleash its potential to address biodiversity conservation? There is an opportunity for the City to use its agency and to think bigger. An updated cash-in-lieu mechanism can create space for the new funding tools described in this report to be used. The City can also look at these new funding tools independent of the process of updating the alternative park dedication rate. Any high-functioning ecosystem needs a rich diversity of species to thrive. Hence, the City needs a multitude of financial tools to address its approximately USD 1.16–1.56 billion (CAD 1.51–2.03 billion) annual biodiversity funding gap. There are numerous Canadian, U.S., and international examples listed in this report upon which officials can draw from. The City also needs greater flexibility, specifically less rules for using the existing reserve funds. The increasing severity of weather events adds urgency to apply interventions with co-benefits like resilience bonds, for instance.

The implications for new Alternative Parkland Dedication rate and cash-in-lieu policy as well as the use of new funding tools go beyond dollars and cents. They can help shape our city and region's identity and future. Canals helped the Dutch to manage the risks of rising sea levels. They have since become a part of their identity and the urban fabric of cities like Amsterdam. Toronto can use the natural assets like ravines and parks that it is endowed with and make them a part of its own identity. Toronto's athletes and musicians have put the city on the popular culture map in recent years – think of Drake's partnership with the Toronto Raptors. It is time for the City to take inspiration from that swagger and to make bold moves on biodiversity conservation. There are many factors lining up in its favour. With many spending – and continuing to spend – their leisure time in parks, there is a captive audience for it. If not now then, when?

Recommendations:

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- **Conduct a sludge audit of the use of funds for parkland acquisition from Section 42 Reserve Funds statement.** Sludge, in this context, can be defined as excessive or unjustified frictions like paperwork that cost time and money, which end up depriving people of access to important services. (Sunstein, 2020) There is sludge in the parkland acquisition process because of the complex rules that exist for using existing reserve funds towards parkland acquisition. A sludge audit of this process must be conducted with the goal of removing key barriers for parkland acquisition to expedite the purchase process.
- **Remove the red tape in the parkland acquisition immediately.** It is concerning that in July 2021 the City of Toronto staff reported an uncommitted balance of \$221,899,012 combined in the Parkland Acquisition Reserve Funds and the Alternative Parkland Dedication Rate Reserve Fund (AKA Section 42 CIL Above 5%). Municipal staff reported in 2019 an uncommitted balance of \$221,899,012 that can be used for parkland acquisitions. That is 8.2% of PFR's \$2.7 billion 2022-2031 10-Year Capital Plan. As a UK consultant we spoke with put it: "If you have a big pot of money, you have the resources to deliver." (P. Communication, 2021) The challenges to parkland acquisition include: the City's inability to use financing in purchases, the increase in land values in a project's vicinity once CIL funds are collected, and the need for Council approval to use reserve funds. The City needs to prioritize simplifying this process. For instance, a financing approach can facilitate parkland acquisition if the City is interested in a property and an insurance firm is willing to invest in flood protection measures. To speed up the parkland acquisition process, PFR could implement management approaches that have been used in nimbler city agencies or from provincial agencies and crown corporations. These measures must be taken while prioritizing Toronto's deliberative democracy. It is hard to justify having this money unspent any longer given that Ontario Regulation 509/20 requires annual reporting.
- **Create an Urban Green Space Bond.** A fixed income or debt instrument can be developed that would be underwritten by the current cash balance in municipalities and the income generated by CIL transfers from development project. The Urban Green Space Bond would be CIL-backed. If we took the Parkland Acquisition Reserve Funds received in 2019, which were \$31,186,033 and assume that this is the annual cash inflow, the City could theoretically borrow \$623.7 million and afford to pay a 5% annual coupon. The bond could be used to acquire green space at the appropriate scale to increase biodiversity conservation.
- **Direct green bond proceeds towards post-parkland acquisition costs.** Projects approved for receiving proceeds from City of Toronto green bond issuances go through a competitive internal vetting process. (P. Communication, 2021) Proceeds from the City's next green bond issuances should be directed towards post-acquisition costs of new or recently-acquired parkland by the City. Costs can include new native trees and vegetation that increases the biodiversity of these parks as well as their ability to mitigate floods. There is a finite amount that can be tapped since the City has a \$1 billion annual debt limit.

- **Frame the opportunity.** Agencies and corporations like CreateTO, the Toronto Port Lands Company and Waterfront Toronto have respectively raised the profile and centralized resources for City-owned real estate and the waterfront. Increasing the City's parks and their biodiversity can make Toronto more attractive as well as attract and retain residents, especially as hybrid work models become the norm. Taking inspiration from the aforementioned organizations, increasing resources towards parkland acquisition will have long-term economic, social and environmental payoffs.
- **Change cash-in-lieu (CIL) rate so it is not capped at 20%.** The 2017 City staff review of the Alternative Parkland Dedication Rate found that residential densities had increased significantly from when the rate was initially set in 2005. It is unconfirmed when the City of Toronto will be reviewing its cash-in-lieu rate, however it would be advisable to do so immediately after the new Alternative Parkland Dedication Rate is passed. I recommend setting a cash-in-lieu rate that scales with the proposed density of a site. The graduated cap could provide the City with greater funds to make parkland acquisitions in the vicinity of projects in higher land value areas. This opportunity should be taken to leverage the power of the Section 42 tool and to have it address biodiversity. Through this process, the City should also address the challenges that currently impede parkland acquisitions.
- **Engage emerging parks constituency.** This year will see two elections and public support for parks should be at an all-time high given that citizens have spent more time in them since March 2020. There is an emerging, cross-cutting constituency for more and better parks in Toronto ranging from foundations to young adults and families. The time is ripe for city staff to engage this constituency to build support for nimbler processes around parkland acquisitions that can support a more ambitious vision for parks in Toronto.
- **Budget for what happens after parkland acquisition.** Parks staffers in Toronto, Surrey and Edmonton emphasized the importance of budgeting for the operations and maintenance of parkland acquisitions. Given the political reluctance to raise property tax revenues, operating cuts to PFR may mean less maintenance for the places citizens are growing to love. Proceeds from tools like user fees or payments for ecosystem services could be earmarked for PFR's operating budgets for parkland acquisitions.
- **Centre equity.** The environmental movement has not been synonymous with equity. To ensure biodiversity conservation has wider appeal through parkland acquisition, it needs to centre the needs of equity-seeking groups. The City has documentation leading in this direction as the Parkland Strategy applies an equity lens. If bonds are issued for parkland acquisition, they should not be done so unless there is a strong equity lens. If anything, issuing a hybrid social and green bond can address equity and more funds than a standalone green bond.

- **Explore Indigenous partnerships.** Indigenous Protected and Conserved Areas (IPCAs) represent a novel approach to biodiversity conservation with powerful potential. Continuing to develop relationships with Toronto's and the region's Indigenous peoples will be vital if an IPCA is ever brought to life in Toronto. IPCAs would provide job opportunities and could help to fulfil Call to Action #43 of the Truth and Reconciliation Commission. It can also be an avenue for building long-term public support for increased parkland acquisition.
- **Improve wayfinding for quick wins.** A casual walk through two different Toronto ravine sites is not always an equal experience. For instance, it is difficult to access the Cottonwood Flats from Thorncliffe Park due to the absence of wayfinding. This, despite the site's interesting history and mention in Toronto's Biodiversity Strategy as well as the neighbourhood's proximity to equity-deserving groups. Implementing the Core Circle, which reimagines central Toronto green spaces, can be done through improving access and wayfinding. These would be visible investments to the public that would improve the accessibility of parks. The public would see the benefits of parks investment and understand their investment potential.
- **Prepare for natural disasters.** Concerns over flood risks in Canada have been documented by the insurance industry for years. Toronto is no exception to these risks as increased flooding in recent years has demonstrated. The City's Port Lands Flood Protection is partly funded through a 2019 green bond and should be applauded. The City must also consider tools like parametric insurance and resilience bonds to renew infrastructure to be more resilient for increasing flood risks. This can dovetail with parkland acquisition. Lastly, the City can lobby the federal government for inclusion of new financial tools as part of a future national overland flood insurance program.
- **Consider a blended finance approach for major parkland acquisition.** The City is limited with how much debt it can take on as bonds can only be issued for capital projects under the City of Toronto Act, 2006. However, this constraint presents an opportunity for funding capital projects associated with parks. The City should consider working with the financial sector and foundations for major parkland acquisitions. These arrangements can be structured in ways that can attract investors. However, a blended finance approach may require the City to take the first step in providing seed capital.
- **Build cross-departmental relationships.** The City of Toronto's Capital Markets, Indigenous Affairs Office, Parks, Forestry and Recreation departments would work with each other on significant parkland acquisitions. Independently, these departments may have capacity regarding parks. However, collaboration will lead to increased capacity being developed in parkland acquisitions and speed up the purchase process.

- **Prioritize activities that restore fauna and flora species.** It is novel for there to be wildlife investments or businesses that rely on threatened native species or are reintroducing species that were extirpated. This approach can generate potential co-benefits like jobs and raise the profile of less sexy species like the Jefferson Salamander. However, it can produce perverse incentives with consequences for other species. Thus, it is important to take a multi-species or habitat approach when implementing wildlife bonds or supporting businesses reliant on native species.
- **Engage institutional investor community.** Financial interest in nature is unlikely to go away. Investor interest in nature/biodiversity conservation will continue to increase past the Glasgow Climate Change Conference in fall 2021. The City of Toronto has issued its first ESG report, which is an excellent move to attract ESG/responsible investors towards opportunities like green bonds. PFR staff should prepare for a rise in interest in biodiversity and for opportunities related to this. Thus, becoming literate in investment terminology or trends may aid PFR staff in preparing their business cases for ambitious biodiversity projects and/or parkland acquisitions.
- **Invest in nature-related businesses.** Taking a vertical integration approach, where the City of Toronto invests in companies and/or infrastructure involved in flora (e.g. seeds, plants, trees, etc.) can pay dividends over the long-term. The City can reap the benefits from improved biodiversity and receive a portion of product sales. It is also a step towards improving resilience to climate change and/or natural disasters.
- **Include a transition period for the market to adjust to a new alternative rate.** It takes years for projects to advance to the permit stage. A changed CIL rate would provide applicants with time to adjust their land purchases or set pre-construction prices. A transition period exists for inclusionary zoning to take effect, for instance.
- **Amend financing rules to allow for public-private partnerships (P3).** The City issues \$1 billion in bonds annually. A resilience bond could be implemented as a P3. For this to happen, the City either needs to raise its debt issuance rules or give greater priority to biodiversity in its parks system as part of its debt issuances. If the City does decide to do either, it can make a prospective project more attractive for institutional investors and attract investment to facilitate parkland acquisitions.
- **Prioritize sites with overlap of positive potential biodiversity and equity impacts.** Prioritizing sites within a proximity of low-income residents while budgeting for their operations can provide improved health outcomes for low-income residents. Economically, these properties are less expensive per square foot than more centrally-located ones. As well, investing in low-income, suburban neighbourhoods ensure that parkland acquisition is a priority across the whole city.

Next Steps

- **Engage in public awareness in campaigns during upcoming elections.** An initiative that brings together advocacy groups to raise the profile of the demand for increased parkland in Toronto could bring public attention to the issue during upcoming provincial and municipal elections. This can consist of sending questionnaires to candidates or organizing debates on this issue. Asking candidates about the need for more parkland in Toronto would make it harder for elected officials and civil servants to ignore this issue once the new political mandates begin. This could lead to an update of the cash-in-lieu allocation policy being prioritized.
- **Convene municipal and financial stakeholders.** Toronto is not only Canada's financial capital, but one of increasing global importance. I am currently organizing an event that would convene municipal officials, investors and civil society on how the existing parkland acquisition can be accelerated and new financial tools used. This event is scheduled for early-May 2022. Institutional investors are increasingly interested in biodiversity finance as evidenced by commitments to industry initiatives like the Glasgow Financial Alliance for Net Zero (GFANZ) and the Taskforce on Nature-related Financial Disclosures (TNFD). The community orientation of credit union's governance structures may provide a natural fit for a partner for the City.

Discount rate: This measure expresses the time value of money and can make the difference between whether an investment project is financially viable or not. (Hayes, 2021) It helps to determine the present value of cash flows from an investment, e.g. a green bond. The discount rate is the amount of risk, interest or inflation that is applied to the future cash flows of an investment.

Discounted Cash Flow (DCF): It is a valuation method used to estimate the value of an investment based on its expected future cash flows. It assesses the viability of an investment by calculating the present value of expected future cash flows using a discount rate. (Fernando, 2021)

Facility: A facility is an earmarked allocation of public (and sometimes philanthropic) funding, which can invest in projects with the aim of attracting commercial investment to those same projects. (Earth Security, 2021)

Internal Rate of Return: This metric provides the expected annual rate of return of a capital expenditure after applying the discount rate. It is used to assess a potential investment's profitability, which differs from DCF, and it does not provide the actual dollar value of the investment. (Fernando, 2022) The higher the IRR, the more attractive the investment.

Real Assets: These are physical assets that include precious metals, commodities, real estate, land, and natural resources. (Chen, 2021) They can help diversify institutional investors' portfolios because of their low correlation with equities and fixed income, as well as their long-term time horizon. They have applications for sustainable timber production and land conservation. (Kosciolek et al, 2020) Timberland funds are common applications.

Appendix 1

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Re-imagine the framework of valleys, bluffs and islands encircling the Downtown as a fully connected 900-hectare immersive landscape system.

INITIATIVES

- 1 *North: Davenport Road Bluff*
Restore and Enhance The Davenport Bluff / Trail
Prioritize Spadina Park for Indigenous Placemaking
Create The Green Line
Connect from The Green Line to Ramsden Park
Expand and Continue to Revitalize Ramsden Park
Connect from Ramsden Park to the Rosedale Valley
- 2 *East: Don River Valley Ravine / Rosedale Valley Ravine*
Create Don River Valley Park
Improve Access to the Future Don River Valley Park
Improve and Connect the Don River Trail
Create a Linear Riverside Park along Bayview Ave
Improve Access and Trail on Rosedale Valley Rd
Improve Access and Connections to Riverdale Park
Connect the Core Circle through Corktown Common
Realize the Lower Don Lands River Estuary
- 3 *South: Toronto Islands / Toronto Bay*
Implement the Central Waterfront Master Plan
Implement Slip Bridges, Wavedecks, Boat Launches, and Habitat Nodes
Create Harbour Landing
Revitalize Centre Island
Enhance Shoreline Ecologies / Aquatic Habitat
Improve the Toronto Islands Circulation Network and Viewpoints to the Inner Harbour and Lake Ontario
Experiment with Flexible, Water-based or Seasonal Island Access at the Eastern and Western Gap
Create New Water Transport Connections
Enhance Water-based Programming and Occupation
Create a Water-based Recreation Pier
- 4 *West: Garrison Creek Corridor*
Revitalize Ontario Place
Revitalize Coronation Park
Realize Fort York and Garrison Common Parks System
Revitalize Stanley Park and Create the Extension
Create the Shaw Street Greenway
Revitalize Trinity Bellwoods Park
Revitalize Christie Pits Park

Source: The City of Toronto's Downtown Parks and Public Realm Plan (2018)

Appendix 2

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Figure 19: Parkland Assessment Tool

PRIMARY ASSESSMENT CRITERIA

EXPAND + INCLUDE	Is the site in a parkland priority area?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
IMPROVE	Is the site suitable for parkland purposes (e.g. size, shape, and utility)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
CONNECT	Does the site improve connectivity to other parks and open spaces?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		If all criteria are answered YES, Proceed to Secondary Assessment Criteria	If any criteria are answered NO, Do Not Acquire

SECONDARY ASSESSMENT CRITERIA

EXPAND	Does this address a park range gap in the area?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Is the site located within an area with a high number of employees, students, or tourists?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Is the value of the acquisition reasonable relative to the number of people who would benefit?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
IMPROVE	Can the site accommodate an FMP facility?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
CONNECT	Is the site within 500 m of transit access?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
INCLUDE	Is the site located in an area with a high percentage of low income residents?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Does the site have cultural significance?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		If a majority of criteria are answered YES, Recommend for Acquisition	If a majority of criteria are answered NO, Do Not Acquire

Source: City of Toronto, Parkland Strategy, 2019

Appendix 3 – Interview package / Questionnaire (For City of Toronto Officials)

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Questionnaire

1. Can you please describe your role and work?

Theme 1: Parkland Dedication Rate

2. How can the current parkland dedication rate be improved? What is missing?
3. What are your views on prioritizing biodiversity conservation and park access to equity-seeking groups as part of the new parkland dedication rate?
4. How do you view the rules in place for using the funds in the parkland reserve fund?
 - a. In your professional opinion, should they be changed? If so, how?

Theme 2: Using existing funds for biodiversity and equity-seeking groups in the parkland acquisition process

5. According to your experience, what are the gaps that exist in the current parkland acquisition process?
6. What can change to accelerate the use of parkland reserve funds? Based on your past practice, how can such changes to rules help improve spending related to parkland acquisition?
7. How can the rules governing the use of funds for parkland acquisition be improved?
8. How much public understanding is there for parkland acquisition?
 - a. Based on your experience, do you believe that the public would support improving the parkland acquisition process?

Theme 3: The use of new financial tools

9. In your experience, which financial tools are of interest for parkland acquisition? Why?
10. What are the opportunities and/or challenges for city staff to support using new financial tools for parks' operations and/or capital needs?
11. Based on your professional practice, what has been your experience in working with the private sector to address biodiversity conservation in the parks systems?
 - a. What benefits and/or risks would you foresee?
12. What are the biggest needs for parkland acquisition in the City of Toronto?

Appendix 4 – Coding Tally

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Coding	Danny Brown	Jake Tobin Garrett	Liza Stiff	Jane Welsh	Real Estate VP	Suzanne	Total	Notes	
Density vs. size challenge	3					1	4	Major Themes	
New rate	1						1	Surprising Themes	
Government support	1						1	New Ideas	
City of Toronto limitations	1						1		
Biodiversity	1						1		
Equity	1	1					2		
Parkland acquisition criteria	1						1		
Ravine strategy	1			1			2		
Cash-in-lieu	7				1	1	9		
Process	2			1	1	3	7		
Challenges	4	4			3	4	15	culture, nimbleness, ideologies, density vs. size, city communications, lack of expertise	
Real estate sector	4	1		2		2	9		
Public sector	1						1		
Public Awareness	1	1		3			5	public support, public frustration, lack of awareness; tie in equity because of different publics and need for greater vision	
Public policy	1						1		
public support	1						1		
Climate change	1						1		
green infrastructure	1	2					3		
natural capital (valuation)	1		4	1	1	1	8		
highest and best use	1						1		
Canadian City Parks Report		1					1		
Mental Health		1					1		
Ward system (combine with "City wide" and "vs. Ward")		2		1	1		4		
Update parks		3					3		
Linear parks		2					2		
Opportunities		3	1				4		
Ideologies		2					2		
Culture		1		1			2		
Action		1					1		
Connectivity		1					1		
Neighbourhood-level		1					1		
City communications		2					2		
Public frustration		1					1		
Housing affordability		1					1		
Mississauga		1					1		
Pilot projects		1					1		
Vision			3				3		
Transaction			4				4		
Indigenous			1				1		
Green grass			1				1		
Proximity			1		1		2		
Placemaking			1				1		
Parkland deficiency				1			1		
Developer's sales				1			1		
Natural heritage				1			1		
Models				1	1		2		
POPs (together with Models above)				1			1		
Accountability					2		2		
Mid-Rise buildings					1		1		
Provincial regulation					2		2		
City requirements					1		1		
Planning Act (Section 37, 42)					3	1	4		
Nimbleness					2		2		
Incentives					1		1		
Lack of expertise					1		1		
Rail Deck Park					1		1		
High line					1		1		
ESG					2		2		
Setbacks					1		1		
Environmentally-significant					1		1		
Double-edged sword					1		1		
CMHC					1		1		
Ravine access						1	1		
Balances						1	1		
Existing tools						1	1		
Creativity						1	1		
Environmental land dedication						1	1		
Multiple functions						1	1		

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