

The Time Is Ripe

A survey of financial tools to enable urban biodiversity conservation finance in the City of Toronto

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Executive Summary

Parks have been getting more attention during the pandemic as many have sought refuge in nature during periods of economic closure. Nature's benefits are increasingly 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 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 and there are complex rules on its spending. **City staff reported an uncommitted balance of \$207,460,572 as of December 31, 2019 when S. 42 CIL exceeded 5% (Above 5%) among its Parkland Reserve Funds.** This is happening when real estate activity is high. Meanwhile, the City's estimates that by 2033, there will be less than 12 m2 of parkland per person in Toronto compared with 28 m2 in 2016. (2019)

This report addresses three questions: 1) How to make a planning argument to explore how parkland acquisition funds are used / not used and where there may be opportunities to unlock these and deploy for biodiversity conservation (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. Interviews were conducted with 21 individuals in the financial, government, and non-profit sectors in Canada, Costa Rica, the U.K. and the U.S. between May and July 2021. A literature review was also completed.

The Nature Conservancy of Canada and Rally Assets estimates a national biodiversity funding gap of USD\$15-20 bn (CDN\$19.5-26 bn) annually. (2020) **We estimate that Toronto has an annual funding gap of USD\$1.16-1.56 bn (CDN\$1.51-2.03 bn) to address biodiversity.** The City of Toronto can issue \$1 bn in debt per year. Therefore, the municipality must look beyond its current set of financial tools to address the annual biodiversity funding gap for parkland acquisition. We have identified financial tools that can be used in addition to S.42.

Highlighted tools 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 makeup for the financial gap between government and philanthropy. E.g. the Black Rhino Conservation Performance Bond is worth US \$50 mn and has targets to increase this species' numbers in Kenya, South Africa and Zimbabwe
- **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%).

- **Business Incubation:** The City owns or controls the supply, distribution and sales of local plants and foods through vertical integration to restore ecologies. The City can take equity or place a surcharge on start-ups that operate in parks.
- **Payments for ecosystem services (PES):** PES remunerates land owners for providing ecosystem services. For example, Alternate Land Use Services (ALUS Canada) pays farmers to conserve and restore wetlands, native grasses and trees.

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.

We have made numerous recommendations and are highlighting the following:

- **Remove barriers to parkland acquisition.** This process can be accelerated if the City's Parks, Forestry and Recreation's (PFR) implemented management approaches used in nimbler city agencies or at provincial agencies and crown corporations.
- Amend the CIL allocation policy. The City can free up reserve fund money towards area with the greatest need for parkland acquisition.
- Engage the emerging parks constituency. Two elections will occur and a new alternative rate must be passed by Council in the next 10 months, City staff must work with post-secondary institutions, NGOs, foundations and citizens on this issue.
- **Budget for what happens after parkland acquisition.** Parks staff across Canada told us operating funds are as important as capital ones regarding parkland acquisitions.
- **Explore Indigenous partnerships.** Indigenous Protected and Conserved Areas (IPCAs) represent a novel approach to BDC with powerful potential and can help to fulfill the Truth and Reconciliation Commission's Call to Action #43.
- **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:

- Focus on what are the tools of greatest interest for stakeholders. The sites of greatest biodiversity potential and the financial tools to achieve it should be identified.
- Prioritize sites with overlap of positive potential biodiversity and equity impacts. Investing in low-income, suburban neighbourhoods ensures this is a city-wide priority.
- **Convening financial stakeholders.** A group of City staff and financial professionals interested in biodiversity conservation can collaborate on parkland acquisition.

Public support for parks is high. Many factors, e.g. finance, science, the City's reserve funds, are lining up in parkland acquisition's favour. A high-functioning ecosystem needs rich biodiversity to thrive. 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

"Amsterdam is known for its canals. Why can't Toronto be known for its ravines?", asks Philip Jessup, former Director of The Atmospheric Executive Fund. (P.Communication, 2021) Parks have been getting more attention during the pandemic. Many people have spent time in parks as they coped with large parts of the economy periodically closing since March 2020 to ward off COVID-19 infections. International travel restrictions have led to increased camping at Parks Canada and Ontario Parks sites, which had about 13 million visitors in 2020. (CBC, 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. There is global momentum around integrating nature into our lives and to better account for it in our economy.

Meanwhile, the City of Toronto (the City) has an extensive ravine system and parks that provide refuge for ecologically significant flora and fauna. 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. Section 42 of the Planning Act stipulates that real estate developers must either convey parkland or provide 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. (Toronto, 2021) However, it is a powerful tool that could be better leveraged for parkland acquisition purposes.

City staff reported an uncommitted balance of \$207,460,572 as of December 31, 2019 when Section 42 CIL exceeded 5% (Above 5%) among its Parkland Reserve Funds, which include funds for parkland acquisition. The Above 5% metric is considered an

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Graphic Design: Sabrina Careri & Jean-François Obregón Murillo alternative rate that applies in areas with an identified parkland need. 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 on today. This, despite Canada needing to protect an additional 485,500 km2 of land - roughly the size of Yukon - to meet its Convention on Biodiversity Targets (AKA Aichi Targets). The City of Toronto's Parkland Strategy projects a decrease in parkland per person provisions in the future. By 2033, there will be less than 12 m2 of parkland per person in Toronto compared with 28 m2 in 2016. (Toronto, 2019) While parkland acquisition alone will not address global biodiversity needs, it will contribute towards achieving them.

If Toronto wants to make big moves to address biodiversity then, it needs other funding tools beyond parkland acquisition and dedication. Herein lies an opportunity for the City to recast the role that parks play in the lives of everyday Torontonians. This report addresses three key questions: 1) How to make a planning argument to explore how parkland acquisition funds are used / not used and where there may be opportunities to unlock these and deploy for biodiversity conservation (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. The 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 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 with calls for increased equity and a better environment, where gains can be made on both fronts while integrating BDC, if we are ready to seize the opportunity.

"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

Background I: 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. 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. 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. The City's Alternative 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. According to an industry source, this rate will only ever secure small, local parks for local recreation. For example, on a condo site downtown of 2,000 sq. m. site area, the parkland dedication at the Alternate Rate of 10% generates a parkland dedication of 200 sq. m. (P. Communication, 2021)

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 and, 3) cash-in-lieu 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. In scenario 3, payment is made by developers to the City of Toronto (The City) based on property valuation at the time of the application. CIL rates are described in **Table 1**.

Development Site Size	Cash-in-Lieu Rate (% Value of the Site)
1 hectare or less	10%
1–5 hectares	15%
Over 5 hectares	20%

Table 1: The City of Toronto Cash-in-Lieu (CIL) Rates

S. 415-25 of the Toronto Municipal Code, Article III stipulates how CIL funds for parkland dedication are to be allocated. It is worth noting that CIL accounts for about 30% of **Table 2** provides a breakdown of this section. Nevertheless, 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. Thus, municipal funds can be pooled to purchase parkland in a specific district if there is a compelling BDC argument for such a transaction. As well, identifying sympathetic councillors in priority areas for large park establishment is important for maximizing the amount of CIL; allocation funds towards land acquisitions. **Table 2** provides a breakdown of the CIL portion.

Allocation	Sub-allocation	
(1) 50% for the acquisition of lands for parks and recreation	(a) 50% to acquire parkland within the district where the funds were generated	
	(b) 50% to acquire parkland throughout the City	
(2) 50% for the development of parks and recreation facilities	(a) 50% to develop and upgrade parks and recreation facilities within the district where the funds were generated	
	(b) 50% to develop and upgrade parks and recreation facilities throughout the City	

Table 2: Breakdown of Cash-in-lieu; Allocation (S. 415-25 of the Toronto
Municipal Code, Article III)

The City of Toronto's Parks, Forestry and Recreation's (PFR) allocation of CIL 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 2033, there will be less than 12 m2 of parkland per person in Toronto compared with 28 m2 in 2016. (Toronto, 2019) The City's CIL 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.

There is currently no way for the City of Toronto to capture the appreciation in property values for parkland dedication CIL rates as application developments progress. Indeed, the City is in the process of changing the alternative park dedication rate to get a new rate before Toronto City Council by September 18, 2022. In order to make large gains on biodiversity, the City will need to make biodiversity a part of the CIL mechanism and include other funding tools. 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, and 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 (2021-2030), the City has earmarked \$405 mn in withdrawals for parkland acquisition. 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. That note estimates that PFR has 213 tax-supported projects under "Capital Projects that Contribute to Both GHG Reductions and Climate Resilience" that total \$1.5 bn. It is unclear which projects specifically count towards the 213 amount because multiple city officials directed our inquiries towards the 2020 Budget Notes for PFR. Nevertheless, there is \$2.0 mn dedicated to the Disaster Mitigation & Adaptation Fund, which includes ecosystem services and green infrastructure. Despite the funds budgeted for PFR, it is unlikely that municipal funds currently available to acquire parkland will be enough in a real estate market that shows little signs of cooling down. Other financial instruments would be combined with the City's existing funds to acquire parkland that address BDC as well as increase access to parks for equity-seeking groups.

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 showcase its 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. Importance is given to enhancing biodiversity as well as improving access to ravines. (Figure 1a, 1b) (See Appendix 1 for a list of initiatives tied to The Core Circle)

Figure 1a: Design Intervention for improving ravine access



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

Figure 1b: Cottonwood Flats, Toronto



Source: Jean-François Obregón Murillo

Background II: 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. 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 CIL in parkland dedication payments and spent \$172,267,208 from CIL on 707 park acquisition and development projects. (Toronto, 2021) There is a staggering \$207,460,572 in an uncommitted balance for Section 42 CIL Above 5%, which can be applied for parkland acquisition with a biodiversity and social equity overlap. **(Table 3)** Between 2016 and 2019, \$27,709,859 was spent on parkland acquisition.

Table 3 shows committed and uncommitted CIL funds. The latter category is explained by numerous factors, including: time lag between when CIL payments are received and when they can be allocated for capital purposes, the City needs to "save up" to purchase land in a hot real estate market, and protracted negotiation and settlement processes for parkland acquisitions. Perhaps the most

² Expenditures from First 5% Cash-in-lieu Reserve Funds. <u>https://www.toronto.ca/legdocs/mmis/2021/ex/bgrd/backgroundfile-168667.pdf</u> significant challenge is the City's CIL allocation policy – explained in **Table 3** – has a complicated formula for splitting funds into multiple reserve accounts. This restricts the City from directing funding towards its own priorities.

These obstacles can be overcome by making processes related to CIL 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 CIL allocation policy so that it frees up reserve fund money towards the greatest need for parkland acquisition.

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

Table 3: City of Toronto Cash-in-lieu Reserve Accounts

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

*Commitments are as of 2020 Q3 variance report

Source: City of Toronto, 2021

There are \$225,522,259 in committed parkland acquisition funds in the City's 2020-2029 Capital Plan. **(Table 3)** The City's Parkland Strategy maps out Parkland Study and Acquisition Priority Area **(Figure 2)** 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 BDC 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. (2019) Although 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 in the next 11 months, the timing is vital for placing parkland dedication higher on the political agenda.

Figure 2: 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

Methodology

We contacted 35 individuals across the financial, government, non-profit and consulting sectors in Canada, Costa Rica, the U.K. and the U.S. Respondents were interviewed over the phone or videoconference and were asked between four to eight questions in a semi-structured format about BDC and, when applicable, conservation finance. Interviews were conducted with 21 individuals between late-May and mid-July 2021. The interviewees were found through our networks, snowballing and cold emailing.

We conducted secondary research by reviewing academic literature and grey literature. 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. Albeit the run-up to the Glasgow Climate Change Conference in fall 2021 is motivating industry activity.

Literature Review

There is emerging academic and grey literature on conservation finance, however it is rare to come across an overlap with parkland acquisition or dedication. A notable exception is Jessica Kae Erickson's 2006 master thesis exploring land acquisition and financial strategies for urban parks. Given the similarities between traditional conservation and urban parks, we are applying the academic and grey literature on conservation finance for the purposes of parkland acquisition and dedication.

Canada has not met its Target 1 goals under the 2010 Strategic Plan for Biodiversity ${}^{m y}$ (AKA Aichi Targets). Burgess and Levine (2018) state: "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." Cities and urban parks are a visible and tangible way that could help Canada to achieve this international commitment. According to the NCC and Ralley Assets (2020). Canada needs to protect an additional 485,500 km2 of land to meet its Aichi Targets - about the size of Yukon. (Statcan, 2011) Burgess and Levine identify green bonds, ecotourism fees, debt restructuring and carbon offsets as relevant conservation finance tools. They note a significant barrier to green bonds being the difficulty of generating cash flows from land conservation projects, which is pointed out by Bilmes et al., 2015. This point is echoed by Earth Security, 2021 regarding making nature-based solutions (NBS) investable. The Climate Bonds Initiative will be publishing an Agriculture and Land Use State of the Market report later in 2021 as it accounted for 5% of green bonds in 2020. (CBI, 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. (Ibid.) As well, 51% of issuances came from sovereigns, where the Canadian federal government could ostensibly channel funds through a green bond. (Ibid.) A conversation with an industry professional validated that Land Use or NBS are a minority of the projects being evaluated for their environmental credentials.

According to De Valck and Rolfe, 2019, valuing biodiversity is important to ensure the sustainable management of natural assets. Doing this is crucial to design financial mechanisms to preserve biodiversity when social costs and benefits are not equally distributed. This is applicable at the City, where the Parkland Strategy (2019) centres an equity lens and where interviewed PFR employees stated 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, De Valck and Rolfe make note of Waldron et al. (2017) stating that increased conservation expenditures helps to reduce biodiversity loss. 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. 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 CDN\$28 mn. (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. (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 financial mechanisms to address BDC. (Valck and 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 bn (CDN\$19.5-26 bn) in Canada annually. (2020) We can approximate the funding gap for the City by taking its proportion of Canada's population (7.75%) and leading us to estimate an annual funding gap of USD\$1.16-1.56 bn (CDN\$1.51-2.03 bn) to address biodiversity. Considering that the City of Toronto can only issue \$1 bn in debt annually and a portion of this is green bonds, the municipality must look beyond these mechanisms to fulfill 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 in order to attract the private sector. (2021) 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. The municipality can take on these challenges with public enthusiasm to get buy-in from financial and citizen stakeholders. For instance, the Scottish Conservation Finance Project's £1 Billion Challenge provides a 12-step guide to developing conservation finance initiatives and shares numerous examples. (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. (NCC, 2020) 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.

³ Assume \$1.30 to USD 1 exchange rate in mid-November 2020.

The most recent federal budget mentions IPCAs as part of achieving Canada's target of **11** 25% of the country's areas being protected by 2025. **(Figure 4 shows the three essential elements of IPCAs)**

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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		

Figure 3: Three essential elements of IPCAs

Credit: 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. (Bilmes et al., 2015; Earth Security, 2021) 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. Bilmes et al. focus on the use of green bonds to fund projects related to sustainable land use and conservation. (2019) This includes forestry, land acquisition, and conservation easements, which are all applicable for the City's PFR. The relevant categories for the City outlined by Bilmes et al. 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. (Ibid.) 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. 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%. (Naturevest, 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 2021, which is a positive step for attracting responsible investors. The June 2021 release by the Taskforce on Nature-related Disclosures (TNFD) of its proposed scope a and governance indicates how serious the financial sector is in addressing the

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

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) The TNFD has the potential of enabling a similar pathway as nature-related disclosures by public companies may be mandated by securities regulators. PFR must undertake work to quantify its biodiversity value in preparation for investor interest in natural capital being directed towards its activities.

Despite the current buzz around sustainable finance, it is not a panacea for parkland dedication. Crona et al. 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. (2021) 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. furthermore 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. (2021)

Crona et al. state the risk of ESG promoters overstating the benefits of their work to address the sustainability problem causing an erosion of trust. (2021) 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 BDC solutions.

Financial Instruments: Private Instruments

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

Parametric Insurance

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. (IBC, 2020)

An example of parametric insurance would be if Truro, Nova Scotia protected sand dunes or salt marshes to mitigate coastal flooding. (Ibid.) 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. (IBC, 2020) 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. 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 also 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.

Case Study: Forest Resilience Bond (FRB)

The funding gap in California for addressing forest management and wildfire risks is estimated to be USD 6 bn. (Blue Conservation Forest, 2017) 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 mn bond issuance to protect 15,000 hectares of forest from wildfire risk.

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. (NatureVest, 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.

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 Aal) 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. 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 BDC, generating cash flow and scale continue to be challenges for these projects. (NCC, 2020; P. communication, 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 reached USD \$1 trillion in global cumulative issuance since 2007 in December 2020. **(Figure 4 – Green Bonds Market Growth)** If bond issuances are oversubscribed (where demand outstrips supply) then, it allows the issuer to set favourable rates.



Figure 4 - Green Bonds Market Growth

Source: Climate Bonds Initiative, 2020

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. (Bilmes 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.

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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 study: 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 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 emphasis placed on how the aforementioned KPIs can be expressed through BDC. 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 mn) were used for planting hundreds of trees at the Leslie Barns property.

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

Outcomes-Based Bonds (AKA Results-Based Financing) 17

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

DC Water and Sewer Authority issued a USD 25 mn 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 4**. If the green infrastructure underperformed and the stormwater runoff was less than 18.6% then, the investors made a risk share payment to DC Water. Project partners included Quantified Ventures and Goldman Sachs.

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.

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.

Table 4: DC Water Bond Payment Outcome Conditions

Source: Goldman Sachs

Case Study #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 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. Lower sewer flooding costs would result from this. **(See Figure 5 for an illustration)** 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 inherent to green bonds. A number of SuDS projects are being implemented in Greater Manchester as part of its IGNITION project, a multi-stakeholder initiative that is European Union-funded, by April 2022.



Figure 5: How the SuDs model works in Greater Manchester (UK)

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 study: Wildlife Bonds (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 US \$250 mn 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 US \$50 mn in Kenya, RSA and Zimbabwe. 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. 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. 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. (TRCA, 2020)

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 rainfalls. 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. (ICMA, 2020) Thus, issuers are committing explicitly to future improvements in sustainability outcome(s) within a predefined timeline. (Ibid.) 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. The bond had three Sustainability-Performance Targets with a 2025 deadline. The reintroduction and/or reinforcement of wild species into the ecosystem is a 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.

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. (ICMA, 2021) 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 Zach Margolis, 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. 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, 16% coupon rate and valued \$100 mn. 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. (Toronto, 2021)

Social Impact Bonds

In their structuring, SIBs are similar to 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 BDC being tied to health outcomes given recent research investigating this link. SIBs offer a novel way to address equity and environmental issues through BDC.

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 atrisk seniors. 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. (re:focus, 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. They have a three to five year term and are not traditional municipal bonds. When the worst natural disasters strike, the policyholder receives a payout and investors lose a part of or all of their investment principal. **(See Figure 6)** There was a record USD 11 bn in catastrophe bond issuances in 2020. (Insurance Business, 2021)

Resilience Bonds

Similar to catastrophe bonds, except they are designed to fund proactive risk reduction and reactive disaster recovery. (re:focus, 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. (Ibid.) **(see Figure 6)** 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. (EBRD, 2019) The proceeds would be used to fund water, transportation, communication and urban infrastructure. Resilience bonds can be well-suited for funding NBS, specifically flood protection. Therefore making parkland dedication an ideal candidate for the application of this financial instrument.

Figure 6: How Catastrophe Bonds and Resilience Bonds Work



Credit: re:focus 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. (re:focus, 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 land owners for providing ecosystem services, which are conditional on agreements regarding natural resource management. 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. (NCC, 2021)

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. 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 Karen Clarke–Whistler of ESG Advisors, this market is worth \$70 mn. (NCC, 2021) 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. (Bilmes 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. (Ibid.)

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. (Valck and 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 this tool is that it can 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. (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 mn (CDN\$ 93 mn) project is funded through a PPP. (Baroni et al, 2020) Brisbane City Council owns the Oxley Creek Transformation Pty Ltd, a new company that is responsible for redevelopment. (Moore, 2016; Oxley Creek Transformation, undated)

Case Study: The Meadoway (Toronto)

Corey Wells, 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.

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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. 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.

Financial Tools: Public Tools

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, where 40% is in private hands. (Toronto, 2017) 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)

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 Study below)

Case Study: 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 7: 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 Study below)

Case Study: 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 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. (Surrey, 2021) 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.

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 between Hydro One and the City of Toronto to permit building and maintaining infrastructure. Meanwhile, the City pays fees. An MPLA is useful since re-zoning is required in its absence. Enbridge has not made a monetary contribution to the Meadoway. (P. Communication, 2021)

Economic Development

Business Incubators/Accelerators/Bio-Prospecting

Support for BDC 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 BDC. 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 less a costly intervention when considering it through a lifecycle analysis / total cost of ownership assessment, compared to a capital project dedicated to restoration, for instance. (Ibid.) 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 BDC 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, 2021)

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, 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 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. (P. Communication, 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 Study 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. (Alberta, 2021) This tool can be used to address socioeconomic and environmental issues. (Ibid.) 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 8 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 8: 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. (Tavares, 2003) It is a method to shift the development potential from one piece of property to another piece of property (Bredin, 2000). The establishment of a TDR program requires the designation of sending and receiving zones. (Erickson, 2006) TDR's shift the future development potential from one piece of property to another piece of property. (Bredin, 2000) TDR's can be used in Toronto to protect areas of biodiversity significance that are at risk of being developed. Similar to 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. (NCC, 2020) This can raise funds for parkland acquisition and/or their maintenance and operations. The State of Colorado has generated USD 1 bn in tax credits since 2000 and permanently protected 0.7 million hectares of conservation land. (Ibid.) 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)

Stakeholder Mapping & Partner Identification

The City Indigenous Affairs Office

We have begun conversations with the IAO to explore the possibility of a partnership. These conversations are at early stages. An ICPA would represent a powerful avenue to address Truth and Reconciliation as well as BDC. 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.

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. (P. Communication, 2021) There is even an art piece speaking to Missing and Murdered Indigenous Women and Girls.

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.

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. (Mitanis, 2021) 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.

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.

Gaps

Equity

According to City 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. Furthermore, a 2017 Wellesley Institute report entitled Green Paths to Mental Health found that residents in Toronto's low-income neighbourhoods with higher amounts of green space had lower self-reported mental health than compared with their high-income neighbourhood counterparts. Centring equity-seeking groups in the BDC 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's Parkland Strategy applies an equity lens.

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 our experiences and literature review. The academic literature on conservation finance is not timely. As well, there seem to be ideological barriers in these circles, which would need to be overcome to ensure wide-ranging and successful uptake of novel financial tools for parkland acquisition.

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 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 CDN\$ 3.166 tn in 2019, representing 48% growth over two years. (2020) Thus, an expertise has been developed on general environmental topics and the roles that investors can play. Nevertheless, the uptake on BDC finance has not yet been as robust when compared with steps taken by French and UK investors. However, events like the NCC's Making Nature Investable Summit in May 2021 are steps in the right direction.

Conclusion

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 BDC are top of mind for policymakers. Investor interest in nature is rising. The time is now for the City of Toronto to prioritize BDC as part of its CIL allocation policy. It can contribute towards Canada achieving its Convention on Biodiversity Targets of protecting an additional 485,500 km2 of land. This can help to free up reserve funds – of which there is \$207,460,572 in an uncommitted balance in its Section 42 cash-in-lieu Above 5% – that can be used for BDC purposes.

Section 42 is a powerful tool. Why not amend it to unleash its potential to address BDC? There is an opportunity for the City to use its agency and to think bigger. An updated CIL mechanism can create space for the new financial tools described in this report to be used. The City can also look at these new financial 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 bn (CDN\$1.51-2.03 bn) annual biodiversity funding gap. There are numerous Canadian, U.S., and international examples listed in this report upon which officials can draw from. The increasing severity of weather events adds urgency to apply interventions with co-benefits like resilience bonds, for instance.

The implications for a new alternative park dedication rate and 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 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 BDC. 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:

- Remove barriers to parkland acquisition immediately. It is concerning that in July 2021 the City of Toronto staff reported an uncommitted balance of \$207,460,572 in its Section 42 cash-in-lieu Above 5% Parkland Reserve Fund. That is 52% of PFR's approved spending for 2021. As a UK consultant we spoke with put it: "If you have a big pot of money, you have the resources to deliver." While obstacles exist like the City needing to "save up" to purchase land in a hot real estate market, this is not difficult to overcome. To speed up the parkland acquisition process, PFR could begin by implementing management approaches that have been used in nimbler city agencies as well as from reputable provincial agencies or crown corporations. It is hard to justify having this money unspent much longer, particularly as Ontario Regulation 509/20 requires annual reporting.
- Amend the CIL allocation policy. The City can change this policy so that it frees up reserve fund money towards the greatest need for parkland acquisition. The City is in the process of changing the alternative park dedication rate to satisfy a provincial requirement to enact a new by-law by September 18, 2022 in order to continue collecting CIL. 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. The next 11 months will see three elections and a new municipal by-law passed governing collecting CIL for parkland. Public support for parks should be at an all-time high given that citizens have spent increased 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 as well as to justify 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 operations and maintenance of parkland acquisitions. Given political reluctance to raise property tax revenues, operating cuts to parks departments may mean less care 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 BDC 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 be done so with a strong equity lens. If anything, issuing a hybrid social and green bond can address equity and raise more funds than a standalone green bond.

- Explore Indigenous partnerships. Indigenous Protected and Conserved Areas (IPCAs) represent a novel approach to BDC 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 help to fulfill Call to Action #43 of the Truth and Reconciliation Commission.
- Quick wins through improved wayfinding. 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-seeking groups. Implementing the Core Circle, which reimagines central Toronto green spaces, can be done through improving access and wayfinding.
- 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.
- 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. The City should consider working with the financial sector and foundations for major acquisitions. These deals can be structured in ways that can attract investors. However, a blended finance approach may require the City to take the first step.
- 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 efficiency and capacity being developed in parkland acquisitions.
- Consider prioritizing activities that restore fauna and flora species. It is novel for there to be wildlife bonds or businesses who rely on native species that are threatened or reintroducing those that are extirpated. This approach can generate potential co-benefits like job opportunities. However, it can also 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 businesses reliant on native species.

- Engage institutional investor community. Financial interest in nature is unlikely to go away. Investor interest in nature/BDC 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 case 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.

Next Steps

- Focus on what are tools of greatest interest for stakeholders. City of Toronto officials should identify which properties are of greatest BDC potential. Afterwards, they should identify what the financial needs are and how a combination of financial tools can achieve this. Capacity and knowledge about these may need to be acquired.
- Prioritize sites with overlap of positive potential biodiversity and equity impacts. A 2015 CAMH report found that Torontonians in affluent areas with green space reported higher wellbeing outcomes. Meanwhile, the outcomes showed an inverse relationship for low-income residents. 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.
- Convening financial stakeholders. Toronto is not only Canada's financial capital, but one of increasing global importance. 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.

Glossary

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. (Investopedia, 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. (Investopedia, 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. (Investopedia, 2021) 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. (Investopedia, 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. (NCC and Rally Assets, 2020)Timberland funds are common applications.

Appendix 1

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 EnhanceThe Davenport Bluff / Trail Prioritize Spadina Park for Indigenous Placemaking CreateThe Green Line Connect fromThe 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 FortYork 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

Appendix 2

Figure 19: Parkland Assessment Tool

PRIMARY ASSESSMENT CRITERIA

EXPAND +		1.72	151
INCLUDE	Is the site in a parkland priority area?	141	1×1
IMPROVE	Is the site suitable for parkland purposes (e.g. size, shape, and utility)?	[2]	(x)
CONNECT	Does the site improve connectivity to other parks and open spaces?	[2]	[x]
		If all criteria are answered YES, Proceed to Secondary Assessment Criteria	If any criteria are answered NO Do Not Acquire
SECONDARY	ASSESSMENT CRITERIA		
	Does this address a park range gap in the area?	17	(X)
		-	

		If a majority of criteria are answered YES, Recommend for Acquisition	If a majority of criteria are answered NO, Do Not Acquire
	Does the site have cultural significance?	121	(×)
INCLUDE	Is the site located in an area with a high percentage of low income residents?	121	[8]
CONNECT	Is the site within 500 m of transit access?	[2]	[X]
IMPROVE	Can the site accommodate an FMP facility?	[2]	[X]
	Is the value of the acquisition reasonable relative to the number of people who would benefit?	[2]	[x]
EXPAND	Is the site located within an area with a high number of employees, students, or tourists?	[2]	[\$]
	Does this address a park range gap in the area?	121	(X)

Source: City of Toronto, Parkland Strategy, 2019

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