Integrating Equity into Environmental Planning: A Critical Review of Nature-Based Policies and Practices

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Abstract

Nature-Based Solutions (NbS) have become a cornerstone of urban climate adaptation strategies, promoted by international bodies and adopted by municipalities as flexible, cost-effective alternatives to conventional grey infrastructure. Despite their growing integration into planning policy, critical questions remain about who benefits from these interventions, who participates in shaping them, and who may ultimately be displaced as a result. This paper examines the extent to which NbS implemented through Toronto's Sustainable Neighbourhood Action Plan (SNAP) in Rexdale addresses long-term environmental equity, and how planning processes can be improved to produce more just and inclusive outcomes.

Using the Rexdale SNAP as a primary case study, this research adopts a critical mixed-methods approach grounded in frameworks from urban political ecology, growth machine theory, environmental justice, and critical planning theory. Data collection and analysis include: critical discourse analysis of planning and policy documents (including Toronto and Region Conservation Authority (TRCA) SNAP reports, municipal strategies such as TransformTO, and provincial planning frameworks); and a spatial and socio-demographic analysis using QGIS, mapping NbS interventions against tree data across the Rexdale community.

Three key findings emerge from the analysis. First, critical discourse analysis of Rexdale SNAP planning documents reveals that equity is invoked rhetorically but framed in technocratic terms that depoliticize NbS delivery: community participation is treated as consultation rather than co-production, vulnerability is measured by income and housing tenure while race and immigration status go unacknowledged, and ecological performance metrics dominate documents at the expense of social equity indicators. Second, GIS spatial analysis reveals a significant mismatch between NbS intervention locations and areas of highest vulnerability: SNAP investments concentrate along arterial corridors and TRCA-controlled land rather than in the MURB-dense dissemination areas where climate exposure, low income, and racialized demographics converge. Third, NbS investments located within the Finch West LRT corridor overlap with elevated green gentrification risk indicators, suggesting that the same interventions intended to reduce environmental inequity may accelerate displacement pressure for low-income renters in the absence of anti-displacement safeguards. Together, these findings reveal a structural gap between the equity commitments stated in SNAP documentation and the distributional outcomes produced through implementation.

This paper contributes to a growing body of critical NbS scholarship by interrogating how equity is applied, or not, in a Canadian suburban context that has been historically underserved by green amenities and disproportionately affected by environmental burdens. It argues that achieving just outcomes requires

moving beyond technical framings of NbS, toward governance approaches that centre the communities voice, address displacement risk, and actively challenge the structural inequities shaping urban environmental planning. The findings carry implications for municipalities, conservation authorities, and practitioners working at the intersection of climate adaptation, environmental justice, and neighbourhood planning across Canadian and international urban contexts.

Foreword

This research grew out of a personal and professional commitment to understanding how cities serve, or fail to serve, the people within them. Having grown up in a family shaped by the immigrant experience and by intergenerational connection to land and place, I have long been drawn to questions of who belongs in urban environments, who shapes them, and who is left out of decisions about their future. These questions deepened through coursework, community-based learning, and a visit to Rowntree Mills Park in Rexdale, where the gap between planning intentions and lived experience became unmistakably visible: a park with genuine ecological beauty and real potential for community life, yet underutilized, underfunded, and largely disconnected from the surrounding neighbourhood it was meant to serve.

This Major Paper is submitted in partial fulfillment of the requirements for the Master of Environmental Studies (MES) in Planning at York University, and fulfills the research component of the degree as outlined in the MES Program Handbook. The research is directly grounded in, and advances, the learning objectives of my Plan of Study, which is organized around three components: (1) Nature-Based Solutions and Conservation, (2) Environmental Planning, and (3) Socio-Ecological Relationships and Community Wellbeing.

Within the first component, this paper fulfills Objective 1.1 by building a critical and empirically grounded understanding of how NbS operate in practice, moving beyond idealized policy representations to examine implementation in a structurally marginalized community. The Rexdale SNAP case study enables evaluation of specific green infrastructure design and implementation decisions (Objective 1.2), while the paper's sustained attention to distributive and procedural equity directly fulfills Objective 1.3.

In relation to Environmental Planning (Component 2), the extensive critical discourse analysis of TRCA SNAP reports, municipal planning strategies, and provincial frameworks fulfills Objective 2.1 by tracing how environmental goals are framed and how equity is embedded, or omitted, within official planning narratives. The spatial analysis component, mapping NbS investment patterns against tree data using QGIS, reflects the applied planning competencies articulated in Objective 2.2 and is consistent with professional standards recognized by the Canadian Institute of Planners (CIP) and the Ontario Professional Planners Institute (OPPI), supporting progress toward Objective 2.3.

The third component, Socio-Ecological Relationships and Community Wellbeing, provides the ethical and relational foundation of this work. Site visits to Rowntree Mills Park (Objective 3.1) grounded the analysis in place and offered a direct encounter with how planning outcomes interact with the everyday realities of Rexdale residents. Engagement with community-based research, including the Park Perceptions

and Racialized Realities report and TRCA community engagement materials, foregrounds community perspectives and fulfills Objective 3.2. Collaboration with interdisciplinary planning practitioners across the TRCA, City of Toronto, and community organizations (Objective 3.3) has prepared me for future work in interdisciplinary planning environments.

This research integrates the ecological, social, and political dimensions of planning that define my Plan of Study, and represents a sustained effort to contribute to planning theory and practice in ways that are rigorous, equitable, and grounded in the lived realities of Toronto's communities.

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Dedication

For Nonna Sara, Nonna Giuseppina, & Nonno Rocco who inspired my love of nature, passion for sustainability, and appreciation of vibrant communities.

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And to all the people in my circle, who through their constant support, encouragement, and advice, helped make this possible:

To Thelma, my mentor and friend

To Kirat, my partner

To Justine, my cousin

To my parents and sister

And to my grandparents, to whom this work is dedicated.

Introduction

The idea that cities might be designed in harmony with nature is not new. Since Ian McHarg's influential Design with Nature (1969), planners and landscape architects have argued that built environments should follow ecological conditions rather than override them, an insight later extended by Canadian landscape architect Michael Hough (1995) and embedded in broader sustainability debates that recognize cities as dynamic socio-ecological systems. Today, this foundational principle finds renewed expression in the growing discourse around Nature-Based Solutions (NbS): strategies that, as the International Union for Conservation of Nature defines them, protect, sustainably manage, and restore natural or modified ecosystems in ways that address societal challenges while providing benefits for both human well-being and biodiversity (IUCN, 2020).

Globally, NbS have moved from the margins to the mainstream of environmental policy. International bodies including the European Commission, the World Bank, and the United Nations have positioned NbS as central tools for climate adaptation and sustainable urban development. Municipalities have responded by integrating green roofs, urban forests, bioswales, wetland restoration, and permeable surfaces into climate action plans and neighbourhood revitalization programs. These interventions are framed as multifunctional, scalable, and cost-effective alternatives to grey infrastructure, and are increasingly promoted as "win-win" solutions offering simultaneous benefits for ecology, economy, and community wellbeing (Cousins, 2021; Seddon et al., 2020).

Yet this framing has attracted growing scrutiny from critical scholars. As Kotsila et al. (2021) argue, the technocratic language through which NbS are often promoted can obscure the deeply political nature of decisions about where green investments are directed, who is invited to participate in planning processes, and who ultimately bears the consequences of environmental change. Urban greening initiatives, research has shown, do not distribute their benefits evenly. In cities such as New York, Barcelona, and Toronto, climate adaptation projects and green infrastructure investments have been documented contributing to rising property values, displacement pressures, and the marginalization of low-income and racialized residents from the very spaces seemingly improved for community benefit (Checker, 2011; Anguelovski et al., 2018; Gould and Lewis, 2017). This phenomenon, increasingly described in the literature as green gentrification, positions NbS as planning interventions embedded within broader systems of urban development, not merely ecological tools (Bressane, Pinto, & Medeiros, 2024).

These tensions are especially pressing in Toronto, a city where environmental amenities remain profoundly unequally distributed. Hulchanski's (2010) "Three Cities" analysis documented decades of growing income polarization across Toronto's neighbourhoods, with stark disparities in access to housing, services, and environmental resources. More recent research by Dong and Miller (2024) confirms that access to urban green space in Toronto remains strongly correlated with income, race, and housing tenure. Community-based research has further shown that racialized residents, particularly Black and Indigenous communities, face disproportionate barriers to accessing, enjoying, and feeling safe in green spaces, referring to surveillance, policing, and a lack of culturally relevant programming (Park People, 2022).

These inequities converge in Rexdale, a community in Toronto's northwest characterized by a majority-racialized population (89% visible minorities), a high proportion of immigrants (64%), low household incomes, and significant climate vulnerability including elevated exposure to heat and flooding (TRCA, 2023). Historically underserved by green amenities, Rexdale's parks and natural areas along the Humber River have long been underutilized due to poor infrastructure and decades of disinvestment. It is within this context, the Toronto and Region Conservation Authority (TRCA), in collaboration with the City of Toronto and local stakeholders, developed the Rexdale Sustainable Neighbourhood Action Plan (SNAP): a multi-year initiative integrating ecological restoration with community revitalization through NbS interventions including open-space revitalization, tree canopy expansion, stormwater management through bioswales, and residential energy retrofits.

The Rexdale SNAP represents one of the most ambitious attempts in the Canadian planning context to embed social equity within a neighbourhood-scale NbS program. Whether it succeeds in doing so, and how planning processes might be strengthened to better ensure just outcomes, is a question that demands critical investigation. This paper is guided by the following research question: to what extent do Nature-Based Solutions implemented through the Rexdale SNAP address long-term environmental equity, and how can planning processes be improved to ensure more just outcomes?

To address this question, the research draws on theoretical frameworks from urban political ecology (Heynen, Kaika, and Swyngedouw, 2006), growth machine theory (Molotch, 1976), environmental justice (Cousins, 2021; Anguelovski and Corbera, 2023), and critical planning theory (Wamsler et al., 2020). These frameworks are applied within a critical mixed-methods case study design that includes: critical discourse analysis of planning and policy documents, and a spatial and socio-demographic analysis using QGIS to map NbS investment patterns against indicators of demographic vulnerability. The study does not involve

human participants and draws exclusively on publicly available planning documents, institutional reports, and secondary data sources.

The paper is organized as follows: Chapter 1 establishes the theoretical foundations of the research, reviewing literature on NbS definitions and critiques, environmental governance and planning institutions, justice and equity frameworks including green gentrification, Indigenous knowledge and decolonial perspectives, and urban political ecology; Chapter 2 presents the research design and methodology, including the rationale for the Rexdale SNAP as a case study and a detailed account of data sources and analytical procedures; Chapter 3 presents the findings and analysis, including spatial patterns of NbS investment and climate vulnerability in Rexdale, critical reading of planning narratives and governance structures, and cross-case comparative notes drawing on other SNAP initiatives. The paper concludes with a summary of key insights, policy and planning recommendations for embedding equity into NbS governance, and directions for future research.

Chapter 1: Theoretical Framework & Literature Review

1.1 Nature-Based Solutions: Definitions, Functions, & Critiques

The concept of designing cities in harmony with ecological systems has deep roots in planning and landscape architecture. Early scholarship in these fields emphasized the importance of building environments that respect, rather than override, natural systems. In *Design with Nature*, Ian McHarg argued that urban development should be guided by ecological conditions such as hydrology, vegetation, and topography (McHarg, 1969). Canadian landscape architect Michael Hough extended this thinking, demonstrating how cities could work with natural processes rather than suppress them, drawing on the cycles and patterns of living systems to produce more resilient and liveable urban environments (Hough, 1995). These foundational ideas later informed broader sustainability debates in planning, including the recognition that cities are socio-ecological systems in which human activity and natural processes are deeply interconnected.

In recent decades, Nature-Based Solutions (NbS) have emerged as a prominent framework for putting these ecological design principles into practice to address interconnected challenges such as climate change, biodiversity loss, and declining urban livability. The concept is commonly defined by the International Union for Conservation of Nature (IUCN) as strategies that protect, sustainably manage, and restore natural or modified ecosystems in ways that address societal challenges and provide benefits for human well-being and biodiversity. NbS have gained increasing attention in urban planning because they offer multifunctional approaches capable of delivering ecological, economic, and social co-benefits. They are widely incorporated into global climate governance, planning policy, and urban sustainability initiatives, and are promoted as flexible, cost-effective, and scalable alternatives to conventional grey infrastructure.

Urban NbS typically include green infrastructure interventions such as green roofs, urban forests, wetland restoration, permeable surfaces, and green corridors. Scholars have highlighted their potential role in carbon sequestration, stormwater management, urban heat island mitigation, and enhancing biodiversity within built environments. NbS are also frequently associated with improved public health, expanded recreational opportunities, and increased neighbourhood attractiveness (Seddon et al., 2020; Cousins, 2021). As cities face intensifying climate risks, planners and policymakers have embraced NbS as adaptive infrastructure capable of improving resilience while enhancing quality of life. International organizations

including the European Commission, the World Bank, and the United Nations have positioned NbS as central tools for climate adaptation and sustainable development.

Despite their growing prominence, a critical body of scholarship has questioned the assumption that NbS are universally beneficial. The mainstream NbS discourse promoted by international bodies such as the World Bank and the IUCN has been critiqued for reproducing a managerial and technocratic model of ecological governance that prioritizes efficiency and scalability while overlooking local politics, social power, and the historical roots of environmental injustice (Zografos and Robbins, 2020). More broadly, researchers argue that framing NbS as purely technical or ecological solutions can obscure the political and economic dynamics that shape how these interventions are planned and implemented. Decisions about where green infrastructure investment is directed, how projects are designed, and who participates in planning processes are influenced by institutional priorities, development pressures, and broader governance structures (Kotsila et al., 2021; Bush and Doyon, 2019). As a result, the benefits of NbS initiatives are not evenly distributed across urban populations.

Recent studies have shown how urban greening initiatives can contribute to socio-spatial inequality. Investments in parks, tree canopy expansion, and ecological restoration can increase neighbourhood desirability, attract new investment, and contribute to rising property values and displacement pressures. These dynamics are described in the literature as green gentrification, in which environmental improvements become intertwined with processes of urban redevelopment and socio-economic change (Gould and Lewis, 2017; Bressane, Anguelovski, et al., 2024).

These critiques suggest that understanding NbS requires moving beyond purely ecological analyses to examine the social and political contexts in which they are implemented. NbS can be understood as planning strategies embedded within broader systems of urban governance and economic development. Evaluating their equity implications therefore requires attention to questions of power, participation, and spatial justice within planning processes.

Table 1 NbS Intervention Types & Equity Implications

NbS Type	Primary Ecological Function	Potential Equity Benefits	Documented Equity Risks
Tree canopy expansion and urban forestry	Heat island mitigation, air quality improvement,	Improved temperatures in heat-vulnerable areas; enhanced	Historically distributed in higher-income areas; canopy expansion can increase property values and

	carbon sequestration	neighbourhood liveability	displacement pressure (Dong & Miller; 2024; Anguelovski et al., 2018)
Bioswales and stormwater green infrastructure	Flood mitigation, runoff reduction, groundwater recharge	Reduced flood risk for climate vulnerable communities	Benefits concentrated in investment corridors rather than highest flood-risk residential areas; can enhance neighbourhood desirability and attract speculative development (Gould & Lewis, 2017)
Park revitalization and open-space restoration	Biodiversity, urban cooling, recreational opportunity	Expanded access to green amenity in underserved communities	Most documented driver of green gentrification; increased park quality correlates with rising rents and displacement of low-income renters (Cousins, 2021; Anguelovski and Corbera, 2023; Checker, 2011)
Riparian and wetland restoration	Erosion control, habitat connectivity, carbon storage, flood plain management	Ecological restoration of degraded natural corridors	Located in ecologically constrained areas (floodplains, ravines) rather than residential zones; often inaccessible to residents separated by arterial roads or lacking mobility (TRCA, 2023)
Residential energy retrofits	Energy efficiency, emissions reduction, indoor air quality improvement	Reduced energy costs and improved living conditions for residents	Benefits primarily accessible to homeowners; tenants dependent on landlord participation; retrofit costs may be passed through rent increases to low-income renters (TRCA, 2023)
Green corridors and trail networks	Active transportation, habitat connectivity, recreational access	Improved pedestrian infrastructure in underserved neighbourhoods	Racialized residents report disproportionate barriers to safe and welcoming use, including surveillance and policing in green spaces (Park People, 2022)
Green roofs and permeable surfaces	Stormwater management, building insulation, heat reduction	Reduced urban heat and runoff at building scale	Benefits accrue to building owners; inaccessible to tenants; rarely implemented in aging rental housing stock without public subsidy programs (Seddon et al., 2020)

The sections that follow build on these insights by examining the governance structures, planning institutions, and justice debates that shape NbS implementation in cities. By situating NbS within broader theoretical frameworks, including environmental justice, urban political ecology, and critical planning

theory, this study seeks to better understand how environmental planning initiatives may either reinforce or challenge existing socio-spatial inequalities.

1.2 Environmental Governance & Planning Institutions

Environmental governance refers to the institutions, policies, and decision-making processes through which environmental resources are managed and regulated. In urban contexts, environmental governance typically involves multiple actors, including municipal governments, regional authorities, conservation authorities, private developers, and community organizations. Scholars studying environmental governance have emphasized that sustainability initiatives are frequently shaped by technocratic planning approaches that prioritize efficiency, performance metrics, and infrastructure delivery (Bush and Doyon, 2019; Kotsila et al., 2021). Within this framework, NbS tend to be treated as technical solutions that can be implemented through standardized planning tools and design guidelines. This approach can limit opportunities for meaningful community participation and the integration of diverse forms of local knowledge.

Critical planning scholars argue that environmental governance systems can unintentionally reproduce existing social inequalities when they fail to address historical patterns of spatial injustice. Planning decisions regarding the location and design of environmental infrastructure are often influenced by political and institutional factors as well as land value dynamics. As a result, investments in green infrastructure may be concentrated in areas where redevelopment opportunities are greatest, or where environmental improvements align with broader urban growth strategies, rather than in communities with the most pressing environmental needs (Molotch, 1976; Sekulova and Anguelovski, 2017).

These dynamics are particularly relevant when examining the governance arrangements that shape NbS initiatives. Environmental planning programs frequently operate through partnerships between government agencies, conservation authorities, and private-sector actors. While collaborative governance can create opportunities for interdisciplinary planning and resource sharing, it may also introduce tensions between environmental objectives and economic development interests. When accountability structures are unclear or fragmented, equity considerations can be overlooked in favour of technical efficiency (Bush and Doyon, 2019).

In Canada, environmental governance in urban regions often involves collaboration between municipal governments and regional conservation authorities responsible for watershed management and ecological restoration. The effectiveness of these governance arrangements depends significantly on how

equity considerations are incorporated into decision-making processes. Systems that prioritize technical performance may overlook the socio-spatial dimensions of environmental planning, including disparities in access to green space, barriers to community participation, and the potential displacement effects of environmental investments (Sekulova and Anguelovski, 2017).

Evaluating the role of governance in NbS implementation therefore requires examining the institutional processes through which planning decisions are made. This includes analyzing how planning policies frame environmental goals, how public participation is structured within those processes, and how institutional priorities influence the distribution of environmental investments across different neighbourhoods. The following section builds on this governance perspective by examining how debates around environmental justice and green gentrification have emerged in response to uneven access to urban environmental amenities.

1.3 Justice, Equity, and Green Gentrification

Environmental justice scholarship provides a critical lens for examining how environmental benefits and burdens are distributed across populations. Emerging from grassroots activism in the United States during the 1980s, the environmental justice movement drew attention to how marginalized communities, particularly racialized and low-income populations, are disproportionately exposed to environmental hazards such as toxic waste facilities, air pollution, and industrial contamination. Scholars including Robert Bullard documented how these inequities were closely tied to systemic patterns of racial discrimination, economic marginalization, and unequal political representation (Bullard, 1990).

Within urban planning research, environmental justice scholarship has evolved beyond its origins in environmental hazards to encompass disparities in access to environmental amenities such as parks, urban tree canopy, and clean water. These inequities are products of historical planning decisions, including segregationist land-use policies, uneven patterns of infrastructure investment, and disparities in municipal service provision. Access to urban environmental amenities is therefore structured by broader socio-spatial inequalities, rather than by need or geographic proximity alone.

Environmental justice scholarship distinguishes between two key dimensions of equity. Distributive justice refers to the spatial distribution of environmental resources and infrastructure across communities. Procedural justice focuses on the fairness and inclusiveness of the decision-making process itself. Together, these dimensions provide a framework for evaluating whether environmental policies

produce equitable outcomes and whether governance processes are genuinely participatory (Cousins, 2021; Tozer et al., 2020).

In recent years, environmental justice debates have increasingly intersected with research on urban greening and climate adaptation. Programs designed to expand green infrastructure and restore ecological health are promoted as sustainability strategies; yet scholars have documented how these very interventions can produce uneven social outcomes. Urban greening projects tend to increase neighbourhood desirability, attract new investment, and contribute to rising housing costs and displacement pressures. Scholars such as Isabelle Anguelovski and Esteve Corbera (2023) have shown that climate adaptation projects and urban greening initiatives can unintentionally accelerate displacement when they are implemented without safeguards for housing affordability and community stability. Similarly, research by Kenneth Gould and Tammy Lewis (2017) demonstrates how environmental improvements can become a vehicle for what they describe as "green urbanism," in which sustainability initiatives serve as cover for real estate development and speculative investment.

The concepts of "nature-enabled dispossession" (Cousins, 2021) and "green grabbing" (Fairhead, Leach, and Scoones, 2012) have emerged from political ecology literature to describe how environmental policies and conservation practices, including NbS, can be co-opted to dispossess local communities of land and resources under the guise of sustainability. These dynamics have been observed in cities including New York, Barcelona, and Toronto, where climate adaptation projects intersect with neoliberal land markets to enhance land values and attract speculative investment (Checker, 2011; Anguelovski et al., 2018).

In response to these concerns, planning scholars have increasingly emphasized the importance of integrating environmental justice principles into climate adaptation and sustainability planning. This includes developing participatory planning processes that actively involve marginalized communities, ensuring equitable distribution of green infrastructure investments, and implementing policy measures that mitigate displacement risks (Cousins, 2021; Tozer et al., 2020; Puskás et al., 2021). In Toronto, where neighbourhoods exhibit significant socio-economic disparities and uneven access to environmental amenities, these debates are especially pressing. Programs such as the Rexdale SNAP, which aim to integrate ecological restoration with community revitalization, raise important questions about how environmental investments interact with broader patterns of urban inequity.

Applying an environmental justice lens to the study of NbS provides a critical framework for evaluating whether these interventions contribute to more inclusive and equitable forms of environmental planning, or whether they reproduce the socio-spatial inequalities they are designed to address.

1.4 Indigenous Knowledge & Decolonial Perspectives

One of the most significant and undertheorized critiques of dominant NbS discourse concerns its relationship to Indigenous peoples and knowledge systems. As Reed et al. (2024) observe, in many Indigenous languages there is no word for 'nature' as a category separate from human life. This absence is not a gap but a reflection of fundamentally different ontological frameworks: ones in which humans, animals, plants, water, and land are understood as relational and interdependent, rather than as distinct domains to be managed or optimized. Mainstream NbS frameworks, by contrast, frequently reproduce a Western, Cartesian separation between human society and the natural world, positioning nature as a resource to be governed, restored, or leveraged for ecological and social benefit (Reed et al., 2024; Rees and Doyon, 2023). This ontological difference is not merely philosophical. It has direct consequences for how ecological interventions are designed, governed, and evaluated, and for whose knowledge is treated as legitimate in those processes.

In the Canadian context, the implications of this critique are especially significant. As Reed et al. (2022) demonstrate through an analysis of federal climate policy, NbS frameworks in Canada frequently invoke Indigenous stewardship practices as validation for technocratic conservation strategies, without meaningfully incorporating Indigenous governance structures, consent processes, or decision-making authority. This selective appropriation risks reducing rich, place-specific traditions of ecological stewardship to technical inputs within planning systems that remain fundamentally colonial in their structure. The result is what Rees and Doyon (2023) describe as a superficial form of inclusion: one that references Indigenous knowledge without transferring power, recognition, or resources to Indigenous communities.

Rees and Doyon (2023) advocate for 'unsettling' NbS: a substantive reorientation of NbS research and practice that shifts governance authority toward Indigenous frameworks rooted in relational ethics, responsibility to land, and the principle of Free, Prior and Informed Consent (FPIC). This is not simply a call to consult Indigenous communities more frequently within existing planning structures. Rather, it requires confronting the colonial foundations of environmental governance itself, including the assumptions about land ownership, ecological expertise, and institutional authority that underpin how sustainability programs are designed and delivered. Unsettling NbS in this sense means more than diversifying who participates in planning processes. It requires rethinking which values, relationships, and forms of knowledge are allowed to shape those processes from the outset.

These critiques carry direct relevance for NbS planning in the Toronto region. The Humber River corridor, which forms the ecological backbone of the Rexdale SNAP study area, flows through territories with deep cultural and spiritual significance for the Haudenosaunee, Anishinaabe, and Wendat peoples, among others. Environmental governance in this region is therefore not a neutral technical exercise. It takes place on lands with histories of dispossession and the suppression of Indigenous land relationships, within institutions whose mandates were shaped by colonial frameworks of resource management and land use control. Planning programs that fail to acknowledge and actively address this history risk perpetuating extractive and exclusionary logics even when their stated objectives are ecological restoration and community wellbeing.

Beyond critique, Indigenous frameworks offer substantive and generative alternatives to the technocratic models that dominate mainstream NbS practice. Place-based, relational approaches to ecological stewardship, grounded in responsibilities to specific landscapes, species, and communities across generations, offer a fundamentally different orientation to urban nature than the project-based, metrics-driven logic of most institutional NbS programs (Reed et al., 2024). Where conventional NbS frameworks tend to ask what ecological services a green space can deliver, Indigenous governance frameworks ask what relationships and responsibilities flow between people and land, and how those relationships can be honoured and protected over time. Incorporating these perspectives requires more than methodological openness. It requires structural change; ensuring that Indigenous communities hold meaningful roles in the planning and governance of NbS, that their intellectual contributions are properly recognized and compensated, and that interventions actively support rather than undermine Indigenous sovereignty and land relationships.

This section does not claim to fully represent the breadth or diversity of Indigenous perspectives on NbS, which are place-specific, internally varied, and continuously evolving. Rather, it identifies the decolonial critique as a necessary dimension of NbS equity analysis that remains underrepresented in mainstream planning scholarship. In the context of Rexdale, it raises questions about whether current planning processes adequately account for the colonial geographies that have shaped the neighbourhood's environmental conditions, and whether NbS programs can move beyond performative land acknowledgment toward governance practices genuinely grounded in Indigenous rights and relational stewardship.

The following section extends this political analysis by examining urban political ecology and growth machine theory, which provide further conceptual tools for understanding how power and capital structure environmental planning in cities.

1.5 Urban Political Ecology (UPE) & Planning Theory

The theoretical frameworks of urban political ecology (UPE) and growth machine theory (GMT) provide essential tools for analyzing why NbS are implemented in the ways they are, whose interests they serve, and how planning processes can either reproduce or challenge existing inequalities. While environmental justice scholarship focuses on distributional outcomes and participatory procedures, UPE and GMT direct attention to the underlying political economies that structure those outcomes in the first place.

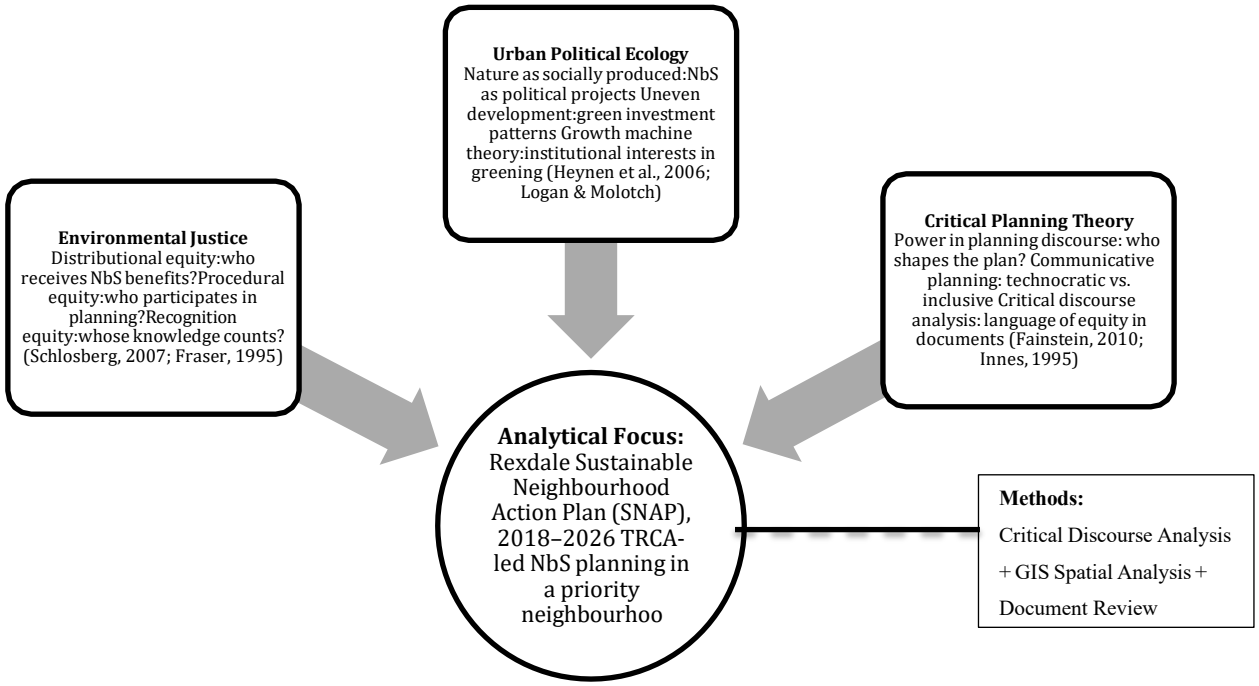


Figure 1 Theoretical Framework Diagram

UPE draws on critical geography, political economy, and ecology to argue that urban environments are socially produced through historically specific processes of capital accumulation, governance, and power, rather than natural settings passively shaped by human activity (Heynen, Kaika, and Swyngedouw, 2006). Cities, from this perspective, function as metabolic systems in which flows of capital, labour, materials, and ecological processes are continuously transformed through social and political relations. The

concept of metabolic urbanization, developed by Swyngedouw (2006), frames the urban environment as a 'socionatural' artifact: neither purely natural nor purely social, but produced through the uneven circulation of resources and the contested politics of development. Parks, green corridors, and restored waterways are more than ecological features or assets. They are socially produced spaces whose form, location, and accessibility reflect the power relations shaping urban planning at any given historical moment.

A central contribution of UPE to this study is its attention to depoliticization. Swyngedouw (2006) argues that environmental policy in contemporary cities is frequently framed as a technical or managerial challenge, neutralizing the political choices embedded in decisions about resource allocation, risk distribution, and governance. When NbS are promoted as win-win solutions delivering universal co-benefits for ecology and community wellbeing, this framing can conceal deeply contested decisions about who benefits, who is displaced, and whose knowledge and interests shape the intervention (Kotsila et al., 2021; Melanidis and Hagerman, 2022). Depoliticized environmental governance renders these choices invisible, making it difficult for affected communities to challenge or reshape the planning decisions that directly affect them. The concept of resilience, which increasingly anchors both NbS policy and municipal climate adaptation strategies, has similarly been critiqued as a depoliticizing frame; one that shifts responsibility for managing climate risk onto individual communities and neighbourhoods rather than addressing the structural conditions that produce vulnerability in the first place (Mikulewicz, 2019).

GMT, originally formulated by Molotch (1976), offers a complementary framework for understanding the political economy of urban environmental planning. Molotch argued that urban development is driven not by neutral market forces or community needs but by coalitions of capital, state, and real estate interests united around the shared goal of intensifying land use and increasing property values. These growth coalitions shape planning decisions in ways that prioritize economic growth and land appreciation over community stability, social equity, and environmental quality. Applied to NbS, GMT reveals how green infrastructure investments can become instruments of urban growth strategies, increase neighbourhood attractiveness and draw private investment in ways that ultimately serve development interests rather than the needs of existing residents (Gould and Lewis, 2017; Anguelovski et al., 2018). The concentration of green amenities in areas with high redevelopment potential, rather than in communities with the greatest environmental need, reflects a pattern consistent with growth machine dynamics.

These frameworks carry direct relevance to the Rexdale SNAP. Rexdale is a community that has historically remained outside the circuits of investment and development that have benefited other Toronto neighbourhoods. The emergence of a large-scale NbS and revitalization program in Rexdale, at a moment

of heightened policy attention to climate adaptation and neighbourhood renewal, raises important questions about which interests the initiative is designed to serve. Is the SNAP primarily a response to the longstanding environmental justice concerns of Rexdale residents? Or is it also aligned with broader growth agendas that position the neighbourhood's ecological assets as opportunities for redevelopment and investment attraction? UPE and GMT provide conceptual tools for interrogating these questions, directing attention to the governance arrangements, institutional partnerships, and policy narratives through which NbS are framed and implemented.

Critical planning theory contributes a further dimension by examining the role of planners themselves in reproducing or contesting these dynamics. Planners are not neutral technical professionals; they operate within institutional structures that reflect and perpetuate particular political and economic priorities. Critical planning scholars argue that achieving equity in environmental planning requires planners to actively challenge growth-oriented development frameworks, build genuine accountability to marginalized communities, and resist the technocratic tendencies that can reduce participation to token consultation (Wamsler et al., 2020; Puskás et al., 2021). This is especially relevant in contexts, such as the SNAP, where planning programs are delivered through multi-stakeholder partnerships involving conservation authorities, municipal agencies, and other institutional actors. These arrangements can diffuse accountability and complicate efforts to trace how equity commitments translate into tangible outcomes for those most in need.

Together, UPE, GMT, and critical planning theory provide the analytical backbone for this study's examination of the Rexdale SNAP. They direct the research beyond the ecological value NbS produce toward the political and economic conditions shaping that production, and whether current planning practices can genuinely deliver just outcomes.

1.6 Identified Gaps in the Literature

The preceding sections have established a rich and growing body of scholarship on NbS, environmental governance, justice and green gentrification, Indigenous knowledge and decolonial perspectives, and urban political ecology and growth machine theory. Taken together, this literature provides a strong conceptual foundation for critically examining the equity dimensions of NbS planning. However, several important gaps remain, and it is these gaps that this study is positioned to address.

The first is a geographic and contextual gap. The critical NbS literature is heavily concentrated on specific settings: European cities such as Barcelona and Amsterdam, major American urban centres such

as New York, and more recently, Global South contexts (Cousins, 2021; Kotsila et al., 2021; Checker, 2011). Canadian urban contexts have received comparatively little attention in NbS equity research, particularly at the intersection of conservation authority governance, racialized spatial inequality, and municipal planning frameworks. Toronto presents a distinctive case: a rapidly growing, highly diverse city where spatial inequalities are well-documented (Hulchanski, 2010; Dong and Miller, 2024), and where NbS are delivered through a specific model of collaboration between the City of Toronto and regional conservation authorities. The governance dynamics, policy frameworks, and community conditions of this model are not well captured by the existing international literature, and the Toronto case warrants dedicated attention.

A second and related gap concerns suburban contexts. Most empirical NbS equity research focuses on inner-city or central urban neighbourhoods undergoing gentrification and concentrated green investment. Suburban, post-war communities like Rexdale, characterized by racialized demographics, income precarity, and histories of infrastructural underinvestment rather than real estate intensification, remain significantly under researched. The dynamics of NbS in these settings may differ in important ways from those documented in gentrifying urban cores, and they require analysis on their own terms rather than through frameworks developed elsewhere.

Third, there is a post-implementation gap. Much of the critical NbS literature focuses on planning processes, policy narratives, and institutional governance structures rather than on the documented outcomes of implemented programs. Post-implementation equity assessments remain rare (Cousins, 2021; Puskás et al., 2021). This study contributes to filling that gap by examining how equity is articulated in the planning documents and governance frameworks of the Rexdale SNAP, and also what spatial patterns of NbS investment reveal about the actual distribution of environmental benefits relative to demographic vulnerability and need.

Fourth, a governance accountability gap persists in the literature. Co-production, participatory planning, and community engagement are widely endorsed in NbS scholarship and policy, but there is limited empirical analysis of how these commitments are put into practice within conservation authority-led programs (Wamsler et al., 2020; Bush and Doyon, 2019). The specific institutional arrangements through which programs like the SNAP are designed and delivered have received little critical scrutiny in the Canadian planning literature. This study addresses that gap by tracing how the governance structure of the SNAP shapes both the procedural and distributive dimensions of equity, and where accountability for equity outcomes is located within the program.

Finally, there is an integration gap in the theoretical literature. The critical frameworks most relevant to NbS equity analysis, including urban political ecology, growth machine theory, environmental justice, and decolonial critique, are rarely brought together within a single study. Each offers valuable but partial insight; their combination produces a more comprehensive analytical framework for understanding how ecological, political, and social dimensions of NbS interact in practice. This study integrates these frameworks to develop a multi-dimensional equity analysis grounded in both critical theory and the specific conditions of a place that has been largely absent from the literature.

These gaps identify a clear need for place-based, critically informed, and empirically grounded research on NbS equity in Canadian suburban contexts. The following chapter outlines the methodological approach through which this study responds to that need.

Chapter 2: Methodology

2.1 Research Design Overview

This study adopts a critical mixed-methods case study approach to examine the extent to which nature-based solutions (NbS) implemented through the Rexdale Sustainable Neighbourhood Action Plan (SNAP) address long-term environmental equity. The research design combines qualitative critical discourse analysis of planning and policy documents with spatial and socio-demographic analysis using geographic information systems (GIS). These two methods serve complementary functions: the discourse analysis illuminates how equity is framed, constructed, and applied within institutional planning texts, while the spatial analysis reveals the geographic patterns of NbS investment relative to community vulnerability. Together, they allow the research to examine both the procedural and distributive dimensions of equity identified in Chapter 1.

The study is grounded in a critical research paradigm, which holds that knowledge production is not neutral but is shaped by social, political, and economic interests and power relations (Swyngedouw, 2006; Heynen, Kaika, and Swyngedouw, 2006). This paradigm suits research that interrogates the structural conditions producing planning outcomes, rather than simply describing them. By combining critical theory with empirical methods, the study moves between macro-level frameworks (urban political ecology, growth machine theory, environmental justice) and micro-level evidence (specific policy texts, spatial investment patterns), building an analysis that is both theoretically supported and grounded in evidence.

A case study design is appropriate for this research because it enables in-depth, contextual analysis of a specific program operating within real-world complexity, without seeking generalization across all NbS programs. Instead, the case study offers analytical insights that can inform understanding of similar programs and governance arrangements in comparable contexts (Kotsila et al., 2021; Bush and Doyon, 2019). The Rexdale SNAP is particularly well suited as a case because it is one of the most comprehensive neighbourhood-scale NbS programs in the Canadian planning context, operates within a governance structure that exemplifies the tensions identified in Chapter 1, and is located in a community whose socio-demographic characteristics make equity questions especially pressing.

This research does not involve formal human participants. Data collection draws exclusively on publicly available planning documents, institutional reports, open-access government datasets, and spatial data layers. Interviews, surveys, or other forms of direct human participant engagement were outside of this study's scope. Informal conversations with practitioners, including consultation with a TRCA SNAP coordinator, informed the researcher's contextual understanding of the program but are not used as formal data sources in the analysis.

2.2 Case Study Justification: The Rexdale SNAP & Toronto Context

The Rexdale SNAP was developed by the TRCA in partnership with the City of Toronto and community stakeholders, with engagement beginning in 2020. It is one of several SNAP programs administered by the TRCA across the Greater Toronto Area, each targeting specific neighbourhoods experiencing elevated climate vulnerability and social inequity. The Rexdale SNAP focuses on an area in Toronto's northwest with a predominantly racialized population: approximately 89% visible minorities and 64% immigrants, including significant South Asian, Black, and Arab communities (TRCA, 2023). The neighbourhood is also characterized by low household incomes, precarious housing, food insecurity, and disproportionate exposure to climate-related hazards including urban heat and flooding (TRCA, 2023; Toronto Academic Health Science Network, 2023).

Understanding why Rexdale is in this position requires historical context. The area was developed in the 1950s as a post-war working-class suburb within the former Township of Etobicoke, designed to house families employed in the manufacturing and industrial corridor near Malton and the international airport (Harris, 2004). The built form reflected this working-class orientation: low-rise residential streets, large multi-unit rental towers constructed under federal affordable housing programs in the 1960s and 1970s (Suttor, 2016), and comparatively limited investment in parkland, civic amenities, and ecological infrastructure relative to wealthier Etobicoke communities to the south (Dong & Miller, 2024; Hulchanski,

2010). When Etobicoke was amalgamated into the City of Toronto in 1998 (City of Toronto Act, 1997), Rexdale entered the amalgamated city already carrying the infrastructure deficits accumulated through decades of suburban underfunding.

Beginning in the 1970s and accelerating through the 1980s and 1990s, Rexdale became a primary destination for new immigrants, particularly from South Asia, East Africa, the Caribbean, and the Arab world (Murdie & Ghosh, 2010), as the community's affordable rental towers offered accessible entry points into the Toronto housing market. As manufacturing employment declined and the community's economic base eroded, Rexdale shifted from a working-class suburb into one of Toronto's most economically marginalized areas (Hulchanski, 2010; Walks, 2001). Hulchanski's (2010) analysis of income polarization across Toronto neighbourhoods tracks this transformation: the Rexdale area shifted from the middle income tier in 1970 to the lowest income tier by 2005, a trajectory shared by a broader band of inner-suburban communities that once housed the industrial working class and now function as reception areas for racialized newcomers. This structural position, produced by the intersection of deindustrialization, racialized migration, and the spatial sorting of the Toronto housing market, underlies the environmental vulnerability conditions that the Rexdale SNAP now seeks to address.

The SNAP's lead institution, the TRCA, also has a history that shapes how it approaches community equity. Established in 1957 under Ontario's *Conservation Authorities Act*, the TRCA was created primarily in response to the catastrophic flooding caused by Hurricane Hazel in 1954 (Shrubsole, 2000), with a mandate focused on watershed management, flood control, and ecological restoration across the Greater Toronto Area (*Conservation Authorities Act*, 1990). For the first several decades of its existence, the TRCA's work in the Humber River corridor, which passes through Rexdale as it approaches Lake Ontario, was oriented almost exclusively toward engineering and ecological functions: erosion control (*Conservation Authorities Act*, 1990), floodplain mapping, land acquisition for flood prevention, and the development of conservation areas. Community social outcomes were not within the TRCA's institutional mandate, and the organization's accountability structure (*Conservation Authorities Act*, 1990), in which it reports to a board of directors composed of elected officials from member municipalities rather than to watershed residents directly, reinforced this technocratic orientation. The evolution of the SNAP model from the 2010s onward represents a meaningful expansion of the TRCA's role into neighbourhood sustainability and community revitalization (TRCA, 2023), but it does so without fundamentally restructuring the organization's governance accountability or its primary institutional expertise (Bush & Doyon, 2019). This history is directly relevant to the equity analysis that follows; the TRCA leads the Rexdale SNAP with the tools and institutional culture of a conservation authority, not a social equity agency, and this shapes what the program can and cannot do.

Several features of the Rexdale SNAP make it a particularly appropriate case for this study. First, it exemplifies the governance model at the centre of this research: a multi-actor, multi-sector partnership through which NbS are planned and delivered within a structurally marginalized community whose current conditions are products of historical processes. Second, the program encompasses a broad suite of NbS interventions, providing a rich range of practices to examine. Third, the SNAP operates at the neighbourhood scale, allowing the spatial analysis to be conducted at a meaningful level of resolution. Fourth, the documented history of green space underinvestment in Rexdale provides a baseline against which to assess whether current NbS investments represent a genuine redistribution of ecological resources or a continuation of historical patterns under a new institutional framework.

Site visits to Rowntree Mills Park, the primary green space and ecological corridor within the SNAP study area, supplemented document-based data collection by grounding the contextual understanding of how planning intentions relate to the physical and social realities of the neighbourhood. During these visits, evidence of SNAP interventions was observable, including new tree plantings, erosion control work, and a COVID memorial garden with native species. At the same time, much of the park's infrastructure remained visibly dated and the space continued to be underutilized relative to its potential, suggesting that meaningful transformation remains ongoing and unevenly distributed. These observations are not treated as formal data but inform the interpretive framework brought to the document and spatial analysis.

2.3 The Woodbine Lands Redevelopment

The Woodbine Lands sit at the southwest edge of the Rexdale SNAP\s study area, boardered by Rexdale Boulevard, Highway 27. The rail corridor and Highway 427 (City of Toronto, 2026a). Redevelopment there has moved quickly. Council’s 2018 approval of aexpanding gaming, conditioned on the Rexdale-Casino Woodbine Community Benefits Agreement, produced the 1$ billion Great Canadian Resort Toronto, which opened in June 2023 with 328,000 square feet of gaming floor, a 400 room hotel, and a 5000 seat venue (City of Toronto, 2026b; Great Canadian Entertainment, 2023). The residential phase followed a different route. Under the November 2023 Toronto=Ontario New Deal, the City and Province committed to advance a Transit-Oriented Community at a future Woodbine GO station and to the “prioritization and expeditious treatment of planning approvals,” after which the Minister of Municipal Affairs and Housing approved the Site and Area Specific Policy 896 (SASP 896) in January 2025, converting the southeast quadrant from Core Employment Areas to Mixed Use Areas and Regeneration Areas (City of Toronto 2026a, 2026c). The Secondary Plan study now in progress would deliver rougly 20,000 households and 35,000 residents. It was prepared by the Woodbine Entertainment Group and its consultants, and Council authorized a Resourcing Agreement under which the landowner

funds the dedicated City staff team completing the study on an expedited 12 to 18 month timeline (City of Toronto, 2026c).

The Woodbine redevelopment project is significant to this analysis because it compares two separate, entirely different processes shaping the same area of the city. The SNAP is a neighbourhood action plan with no statutory force, delivered through a conservation authority whose mandate is mainly watershed management and relies on grants and volunteers. The other is a landowner-financed Secondary Plan study, with support from intergovernmental agreements. There is a clear asymmetry in resources and legal standing. While the SNAP can propose green infrastructure, the SASP could require it or decline to. Nature-based solutions and growth in general tend to be governed by separate organizations, who answer to different authorities, with no single body accountable for the relationship between them.

2.4 Data Sources & Analytical Methods

Data collection and analysis proceed through two complementary methods: critical discourse analysis of planning and policy documents, and spatial and socio-demographic analysis using QGIS.

Document & Policy Analysis

The primary data source for this study is of planning and policy documents related to the Rexdale SNAP and the broader governance context in which it operates. Documents were selected to capture multiple levels of the planning system and multiple stages of the SNAP process, including program framing, implementation planning, and community engagement. This includes all the documents summarized in Table 2.

Table 2 Documents for CDA

Primary Sources	Secondary Sources (to supplement primary document analysis)
the TRCA Rexdale SNAP Action Plan Report (2023);	Park People (2022)
the TRCA Nature-Based Climate Solutions Siting Tool: Phase 1	including community-based research conducted by and academic literature on urban NbS governance
Pilot Study Report (2022)	
the City of Toronto's TransformTO	
Net Zero Strategy	
the Toronto Official Plan; the Province of Ontario's Provincial Policy Statement	
and community engagement materials produced through the SNAP process	

These documents were analyzed using critical discourse analysis (CDA), an approach that treats language and text not as neutral conveyors of information but as sites where meaning, authority, and power relations are constructed and contested. CDA examines how key concepts are defined and framed, whose interests and voices are represented, what is foregrounded or rendered invisible, and how institutional authority is asserted through planning texts. In this study, CDA was applied to trace how concepts including equity, resilience, community, nature, and participation are defined and mobilized across the documents; to identify tensions between stated policy commitments and their operational translation; and to examine how the institutional priorities of the TRCA and the City of Toronto shape the framing of NbS goals and outcomes. Attention is paid to both what is included and the significant gaps; for example, the outcomes that are not measured, and the communities and perspectives that remain peripheral.

A spatial analysis was conducted using QGIS to map the distribution of NbS interventions in the Rexdale SNAP area relative to demographic and environmental vulnerability data. Spatial data sources include TRCA mapping layers documenting NbS intervention locations and ecological conditions within the study area; City of Toronto open data sets on parks, tree canopy, and neighbourhood services; and Statistics Canada 2021 Census data at the dissemination area (DA) level. Environmental vulnerability indicators, including heat exposure risk and flood-prone areas, were drawn from City of Toronto and TRCA datasets.

The spatial analysis serves two related purposes. First, it provides a visual and quantitative account of how NbS investment is distributed across Rexdale relative to the areas of greatest environmental need and least existing access to green amenities. Second, it allows the research to assess whether the stated

equity objectives of the Rexdale SNAP, including its use of the TRCA's Nature-Based Climate Solutions Siting Tool to prioritize high-vulnerability areas, are reflected in the actual spatial patterns of investment. Where data permit, the analysis also considers whether green infrastructure investments are distributed in ways that could expose the neighbourhood to green gentrification pressures documented in comparable urban contexts (Anguelovski et al., 2018; Gould and Lewis, 2017; Wolch, Byrne, and Newell, 2014).

Integration of Methods

The two analytical strands are integrated interpretively. Findings from the discourse analysis are used to contextualize and interrogate the spatial patterns identified in the GIS analysis, and vice versa. Where the spatial analysis identifies a mismatch between investment location and community vulnerability, the discourse analysis can help explain whether and how that mismatch is addressed, acknowledged, or naturalized within planning narratives. Where planning documents assert strong equity commitments, the spatial analysis provides a check on whether those commitments are reflected in distributional outcomes. Together, the two methods produce a more complete picture of equity in the Rexdale SNAP than either could offer alone: one that connects institutional intentions with spatial realities, and policy language with distributional outcomes.

Limitations & Positionality

Several limitations of this study should be acknowledged. The absence of formal human participant data means that the lived experiences of Rexdale residents are represented through secondary sources rather than primary fieldwork. These sources reflect the perspectives of those who participated in formal engagement processes and in the community-based research already conducted; they do not capture the full range of community views. Future research incorporating direct and sustained community engagement would significantly enrich the analysis.

The spatial analysis is also constrained by the availability and granularity of existing datasets. Some intervention locations may not be fully captured in publicly available data. Temporal limitations also apply: the study examines the Rexdale SNAP at a specific stage of implementation, and equity outcomes may continue to evolve as the program matures.

As the researcher, I bring my own positionality to this work. As a planning student with a background in environmental science and a personal connection to immigration and intergenerational place-

making, I am drawn to questions of belonging, access, and environmental justice in communities shaped by forces similar to those that have shaped my own family's experience in Canada. This positionality motivates and informs the research, but it also requires ongoing reflexivity about the assumptions and interpretive choices I bring to the analysis of documents, maps, and data. Where possible, I have sought to ground interpretive claims in direct evidence from the documents and spatial analysis rather than in inference alone, drawing on community-based research already conducted in Rexdale rather than treating the community as a site for further academic extraction.

Chapter 3: Findings & Analysis

This chapter presents the findings from the two analytical methods described in Chapter 2, examining the extent to which the Rexdale SNAP addresses environmental equity in both its planning processes and its spatial outcomes. The analysis is organized to move from the material and spatial to the discursive and institutional, before drawing these threads together to assess equity impacts and draw comparative insights. The findings show that while the Rexdale SNAP represents a meaningful advance in equity-oriented NbS governance for the Canadian planning context, significant gaps persist between stated commitments and both the procedural and distributional dimensions of justice.

3.1 Spatial Analysis of NbS and Vulnerability in Rexdale

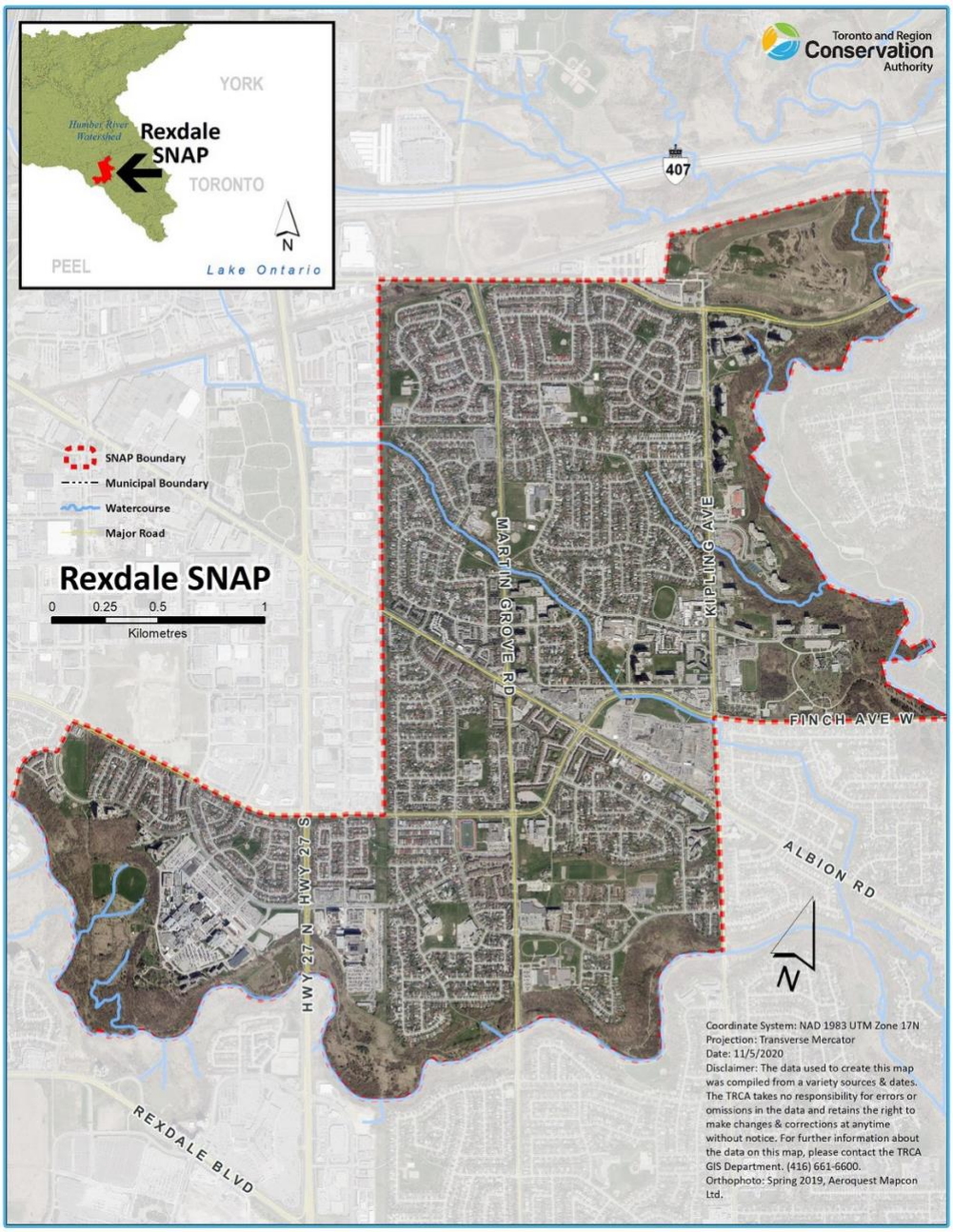


Figure 2 Study Area and Regional Context (TRCA, 2022).

Figure 3 Rexdale SNAP Study Area Regional Context with City of Toronto Boundary.

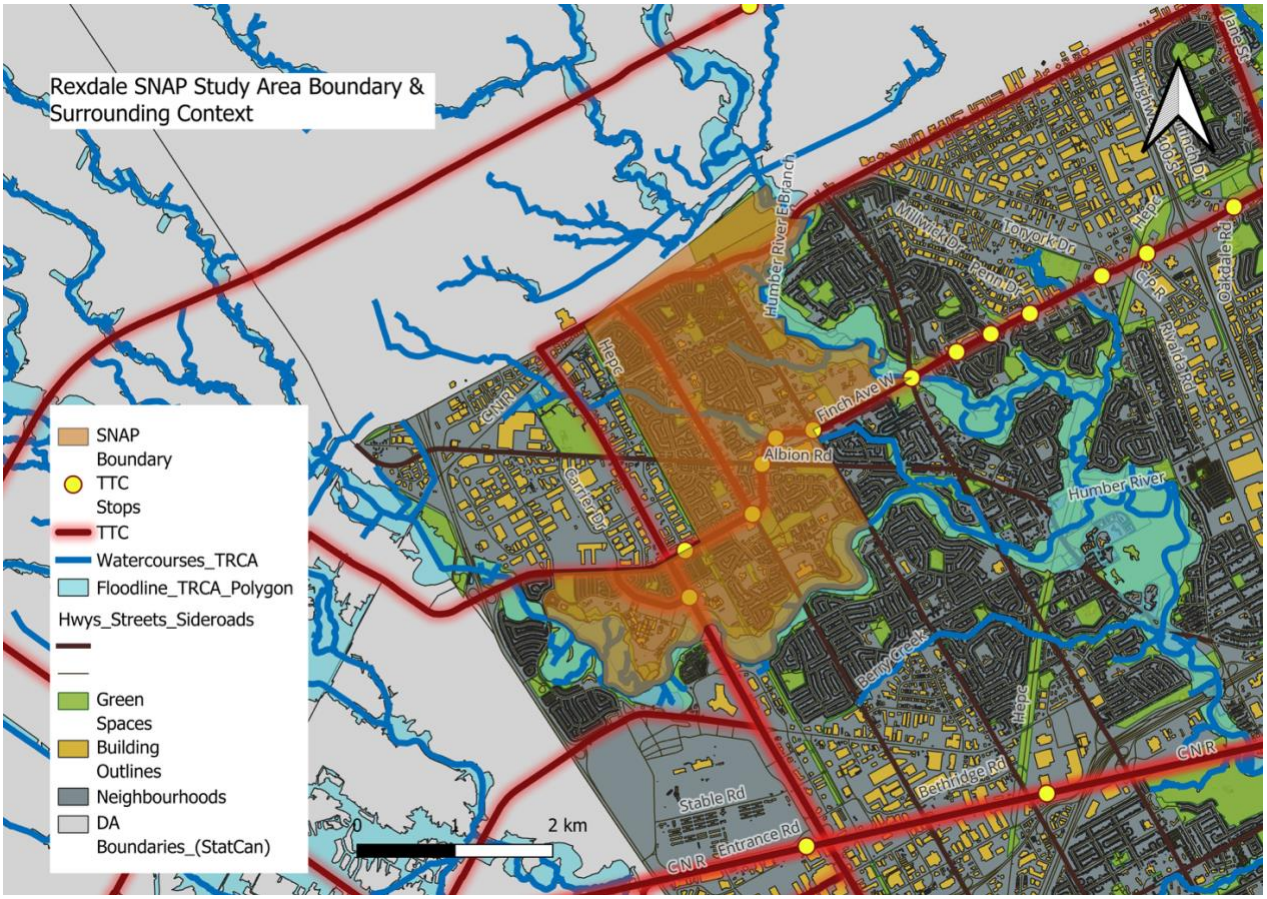


Figure 2 and 3 show the Rexdale SNAP study area within the broader Toronto context. The TRCA's Nature-Based Climate Solutions Siting Tool was designed to integrate social and ecological criteria in identifying priority areas for NbS investment, incorporating indicators including carbon sequestration potential, flood risk, ecosystem integrity, and community health (TRCA, 2022). Its inclusion of socio-economic vulnerability data alongside ecological indicators reflects a genuine institutional effort to direct investment toward communities with the greatest need. The tool identified Rexdale as a high-priority area precisely because of the convergence of ecological deficit and social vulnerability: the neighbourhood ranks among the highest in the TRCA's jurisdiction for heat exposure risk, flood susceptibility, tree canopy deficiency, and socio-economic disadvantage (TRCA, 2022; TRCA, 2023).

The spatial distribution of NbS investments within the SNAP study area, however, reveals an important tension between ecological and equity priorities. The majority of interventions are concentrated along the Humber River corridor, particularly in and around Rowntree Mills Park. These include erosion control, trail improvements, native species plantings, riparian restoration, and a COVID memorial garden. This corridor represents both the space most suited to ecological restoration, being largely publicly owned with existing natural features, and the TRCA's institutional area of expertise and mandate. From a watershed management perspective, the concentration of investment along the riparian corridor is logical. From an equity perspective, it raises a problem: the Humber River corridor is not where Rexdale's most vulnerable residents live.

The highest-density, lowest-income housing in the SNAP study area consists largely of multi-unit residential buildings that are located at a meaningful distance from Rowntree Mills Park, in some cases separated from the corridor by busy arterial roads, large parking lots, and limited pedestrian infrastructure (Toronto Academic Health Science Network, 2023; TRCA, 2023). For many tower residents, including elderly residents, people with limited mobility, and households without private vehicles, the ecological investments at Rowntree Mills are out of reach in practice. The spatial analysis demonstrates that the dissemination areas with the highest vulnerability, are not the dissemination areas receiving the greatest density of NbS interventions. Investment is concentrated in the corridor, while the most vulnerable residential zones remain comparatively underserved.

This gap is not unique to Rexdale. Dong and Miller (2024) demonstrate that green space distribution across Toronto correlates consistently with income and housing tenure: lower-income, renter-dominated areas tend to have lower tree canopy coverage, fewer parks, and less accessible green infrastructure than wealthier homeowner communities. The Rexdale SNAP operates within this pre-existing pattern of spatial inequality, and its corridor-anchored investment logic risks reproducing rather than redistributing it.

Historical Investment Patterns

The current spatial distribution of NbS investment in Rexdale cannot be understood in isolation from the historical geography of green infrastructure investment across the city. The inequalities that the SNAP seeks to address are not recent or incidental; they are the accumulated product of decades of

differential investment that systematically directed parkland acquisition, tree canopy programs, and ecological infrastructure toward wealthier and more politically connected areas of Toronto.

During the post-amalgamation period beginning in 1998, the City of Toronto inherited vastly uneven parkland and green infrastructure legacies from its predecessor municipalities. Former City of Toronto (the pre-amalgamation inner city) and the Borough of North York had invested heavily in ravine park systems, trail networks, and street tree programs serving their predominantly middle-class populations, while former Etobicoke, and Rexdale specifically, had accumulated parkland primarily where land was ecologically constrained rather than where community need was greatest (Hulchanski, 2010; Dong and Miller, 2024). Rowntree Mills Park exists in its current form largely because the Humber River floodplain made adjacent land unbuildable rather than because of deliberate community investment decisions. The park is ecologically valuable, but its historical development as passive conservation land rather than as an actively programmed community green space reflects its origins in flood-control land acquisition rather than in community-oriented planning.

Tree canopy data tells a similar story (Figure 4). Across Toronto, tree canopy coverage correlates with neighbourhood income at the dissemination area scale, with inner-suburban communities like Rexdale consistently showing lower canopy coverage than comparable areas in wealthier parts of the city (Dong and Miller, 2024). Street tree planting programs have historically been administered through a combination of City forestry budgets and property owner requests; in renter-dominated tower neighbourhoods where residents have no incentive or mechanism to request street trees on properties they do not own, this model structurally underserves lower-income areas. The SNAP's tree canopy expansion programming represents a deliberate intervention in this pattern, but it operates against a historical baseline of significant deficit.

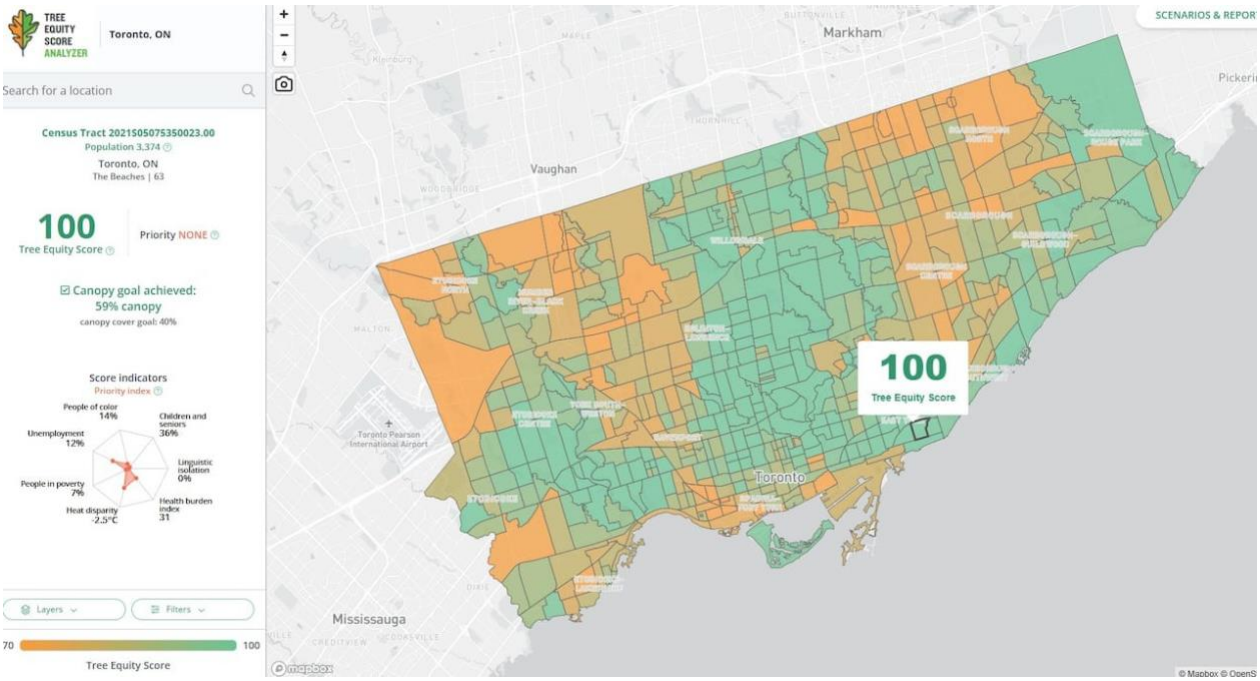


Figure 4 Toronto's Tree Equity Score (Ricci, 2026).

Hulchanski's (2010) longitudinal analysis of neighbourhood income polarization in Toronto further contextualizes these historical patterns. His Three Cities framework demonstrates that between 1970 and 2005, Rexdale and the surrounding northwest Etobicoke area shifted from a middle-income neighbourhood cluster (City 2) to a low-income cluster (City 3), a transition driven by deindustrialization, racialized migration, and the spatial sorting effects of Toronto's housing market. This income decline was accompanied by declining public investment across all dimensions of neighbourhood infrastructure, including parks, transit, and community services. By the time the Rexdale SNAP was initiated in 2020, the community was not simply experiencing a temporary green space deficit; it was recovering from five decades of compounding underinvestment that had shaped both its physical environment and its residents' relationship to institutional planning processes.

This historical context matters for the equity assessment in two ways. First, it establishes that the spatial inequities the SNAP is addressing are structurally produced rather than naturally occurring, reinforcing the argument that addressing them requires structural rather than technical interventions. Second, it raises the bar for what constitutes genuine redistribution: investing in Rexdale's ecological corridor may restore a historically neglected green space, but it does not by itself reverse the decades of

differential investment that have shaped the neighbourhood's broader green infrastructure deficit. Equitable NbS governance in Rexdale requires not only restoration investment in ecologically appropriate locations but deliberate redistribution of investment toward the residential areas and populations that have been most systematically underserved.

Green Gentrification Risk

The spatial analysis also raises a green gentrification concern that becomes more acute when placed against this historical backdrop. The revitalization of Rowntree Mills Park, combined with the recent arrival of the Finch West LRT and the neighbourhood's relative affordability, creates conditions that have historically preceded displacement in comparable urban contexts (Anguelovski et al., 2018; Gould and Lewis, 2017). The LRT corridor introduces transit value that will capitalize into land and rental prices along the Finch Avenue corridor, making Rexdale's proximity to improved green space and improved transit a potential driver of speculative investment pressure.

Recent programming illustrates both the scale and limits of the SNAP. In 2025, the Rexdale SNAP Urban Agriculture Implementation Initiative distributed $45,000 in Toronto Pearson funding across eight community-led projects, ranging from the Rexdale Community Grocery Market to school-based gardens at West Humber Collegiate Institute and North Albion Collegiate Institute (TRCA, 2025). These projects engaged more than 1000 residents, students, and seniors and produced close to 1900 pounds of fresh food over a single growing season (TRCA, 2025). Yet participating organizations collectively requested $130,121, nearly three times the $45,000 ultimately distributed (TRCA, 2025). This gap between community-identified need and available funding is consistent with the broader pattern this paper documents elsewhere, in which the SNAP’s equity commitments exceed the resources committed to realizing them, leaving grassroots organizations to absorb the difference through volunteer labour and other contributions.

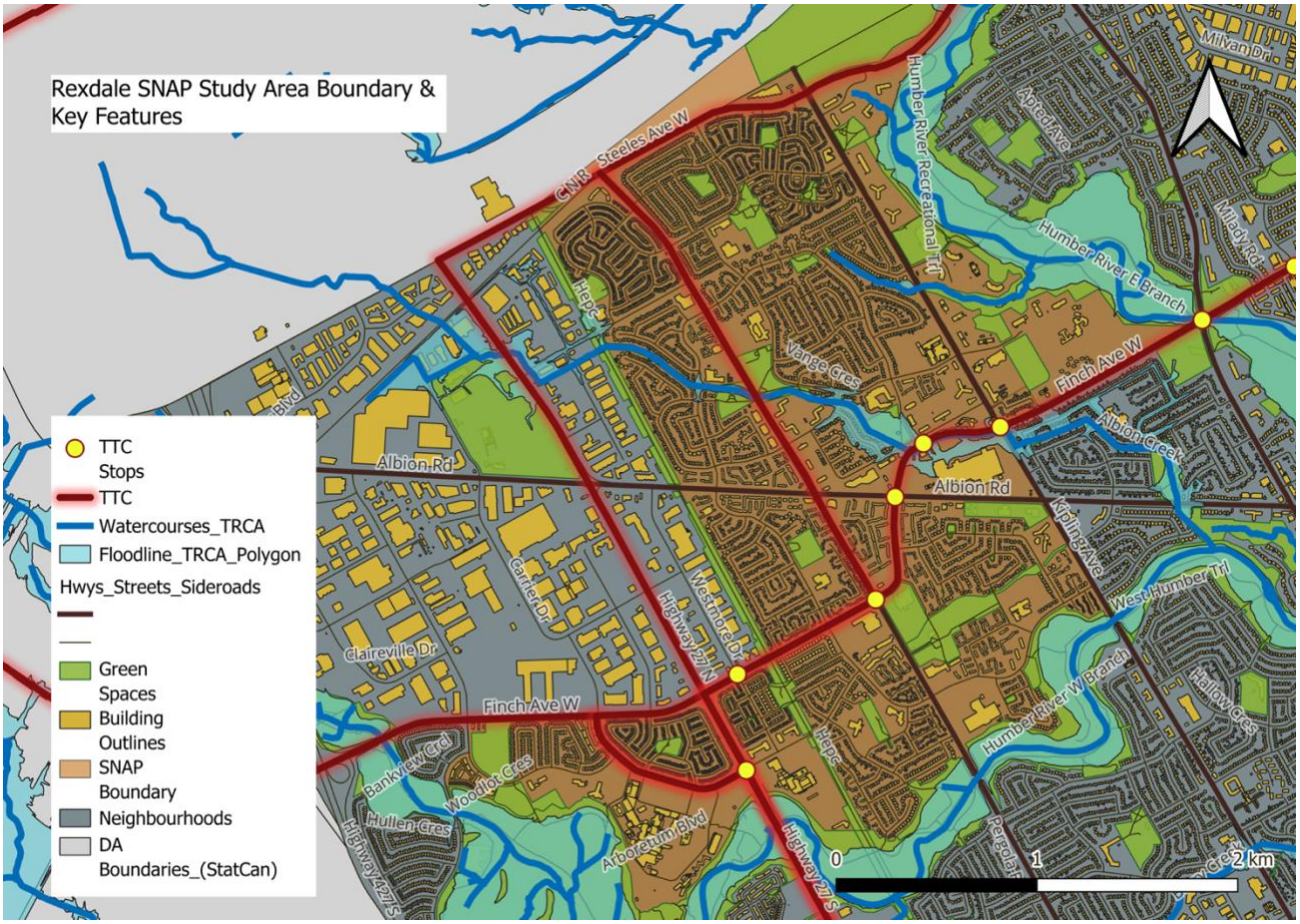


Figure 5 Rexdale SNAP Study Area Key Features

As shown in Figure 5, the study area's key features include neighbourhood parks like Rowntree Mills near the top right hand of the map, the ravine system, transit, and residential housing. The dissemination areas most exposed to this risk are those combining three factors: high renter concentration, location within the LRT station influence zone (approximately 800 metres), and proximity to the park improvements at Rowntree Mills. These areas contain the rental tower clusters that house the community's most economically precarious residents, and they are precisely the areas where rising property values would translate most directly into displacement risk, since their residents have no ownership stake with which to capture the benefits of neighbourhood improvement. The Rexdale SNAP's current planning framework does not establish explicit anti-displacement safeguards, and the Action Plan Report does not mention housing affordability, tenant protection, or coordination with the City's Housing Now or multi-residential retrofit programs. As Cousins (2021) argues, NbS that do not address displacement risk do not achieve justice even when they successfully deliver ecological benefits, since the communities that bear the historical costs of environmental degradation are not guaranteed to be those who enjoy the benefits of environmental restoration.

3.2 Planning Narratives & Governance Structures

The SNAP as a Governance Model: Origins and Evolution

The SNAP program did not emerge fully formed in Rexdale. Its institutional genealogy matters for understanding how equity is structured, and limited, within the current program. The TRCA began developing the Sustainable Neighbourhood Retrofit Action Plan concept in the early 2010s, with pilot programs in communities including Weston and Black Creek, as a vehicle for integrating watershed management goals with neighbourhood-scale sustainability programming. These early SNAPs were primarily focused on residential energy and water efficiency retrofits, with ecological restoration as a secondary component. The integration of more substantial NbS programming, including bioswale installation, open-space revitalization, and tree canopy expansion, developed iteratively as the program matured and as federal and provincial funding for nature-based climate solutions became available through programs like the federal Natural Infrastructure Fund.

The Rexdale SNAP, initiated in 2020, represents the model's most ambitious iteration to date, encompassing a wider range of interventions and a more explicit equity framing than its predecessor programs. It was also the first SNAP to be developed under federal climate funding streams that specifically required attention to social co-benefits alongside ecological outcomes, a requirement that shaped the program's stated objectives and its use of the NBCS Siting Tool. This funding context is important: the equity language that appears throughout the SNAP Action Plan Report (TRCA, 2023) reflects, at least in part, the requirements of federal funders rather than solely the TRCA's own institutional priorities. Whether equity commitments that are procedurally required by funding criteria translate into substantively equitable outcomes is a central question of this analysis.

Equity as Co-Benefit: The Framing Problem

Critical discourse analysis of the Rexdale SNAP Action Plan Report (TRCA, 2023) and related policy documents reveals a consistent framing pattern: equity is presented primarily as a co-benefit of ecological investment rather than as an organizing goal in its own right. The language of the SNAP describes NbS as simultaneously addressing climate vulnerability, improving community health, and generating economic opportunity. Ecological restoration is positioned as the primary intervention, with social benefits flowing naturally from it. This win-win framing, common in NbS discourse internationally, tends to obscure the distributional complexity of NbS outcomes and to depoliticize what are fundamentally political questions about who receives investment and who bears risk (Cousins, 2021; Kotsila et al., 2021; Swyngedouw, 2006).

What is largely absent from the SNAP's planning narratives is an explicit analysis of who specifically benefits from each intervention type, under what conditions those benefits are accessible, and what mechanisms ensure that historically underserved residents benefit from the program's outcomes. The Action Plan Report does not contain an equity impact assessment of proposed interventions, a displacement risk analysis, or measurable social equity targets against which outcomes could be evaluated. Its equity commitments remain aspirational and qualitative, expressed through language like "ensuring benefits reach vulnerable residents" without specifying how this will be verified or what accountability mechanisms apply if it does not. Wamsler et al. (2020) and Bush and Doyon (2019) identify this pattern as characteristic of multi-actor NbS governance: equity is invoked discursively but operationalized weakly, leaving implementation dependent on the discretion and capacity of individual program staff rather than on enforceable commitments.

The NBCS Siting Tool illustrates this gap clearly. The tool's integration of social vulnerability indicators into its spatial prioritization logic is a genuine procedural advance, ensuring that investment is directed in principle toward communities with the greatest need (TRCA, 2022). However, the weighting of social indicators relative to ecological indicators within the tool's methodology is not publicly documented, making it impossible to audit the degree to which social vulnerability drives investment location as opposed to serving as a retroactive justification for priorities already determined by watershed and corridor considerations. A tool without transparent methodology cannot hold anyone accountable for equity outcomes.

Governance Structure and Accountability Gaps

The SNAP governance structure reflects the tensions of multi-actor, multi-level planning identified in Chapter 1. The program is led by the TRCA, a conservation authority with primary mandates in watershed management and ecological restoration, in collaboration with the City of Toronto and local community stakeholders. This arrangement positions ecological objectives structurally above social equity objectives: the TRCA's institutional mandate does not include housing policy, anti-displacement programming, income support, or tenant protection, and the organization's accountability is to its member municipalities rather than to Rexdale residents directly. The City of Toronto has stronger equity tools at its disposal, including community benefit agreements, affordable housing policies, and the Confronting Anti-Black Racism Action Plan, but these are not operationally integrated into the SNAP's implementation framework in any systematic way (TRCA, 2023).

The *Conservation Authorities Act*, which governs the TRCA's mandate and authority, further constrains what the organization can do. The Act grants conservation authorities jurisdiction over watershed

management, natural hazard mitigation, and conservation of natural resources. It does not grant authority over housing, social services, or land use regulation, which remain with municipalities and the province. The TRCA's expansion into neighbourhood sustainability programming through the SNAP model has occurred beyond its core legislative mandate, enabled by federal and provincial funding that does not require strict adherence to the *Conservation Authorities Act's* core provisions. This jurisdictional ambiguity means that the SNAP exists in an accountability gap: the TRCA leads it but cannot enforce social equity outcomes, while the City of Toronto has the authority but has not taken direct program ownership.

The broader policy documents that frame the SNAP's planning context reinforce this pattern. TransformTO's Net Zero Strategy foregrounds emissions reduction and climate adaptation with equity framed as a lens rather than a goal. The Ontario Provincial Policy Statement requires attention to climate change impacts but contains no enforceable equity provisions applicable to conservation authority programming. Within this layered governance architecture, equity commitments remain voluntary and aspirational, dependent on the institutional priorities of program leaders rather than on the enforceable requirements of the planning system (Sekulova and Anguelovski, 2017; Bush and Doyon, 2019). As Swyngedouw (2006) has argued, environmental policy that presents itself as technically driven while obscuring its political choices does not eliminate the politics of resource distribution; it simply renders them less visible and less contestable.

3.3 Themes from Document Analysis: Inclusion, Participation, Power

The Rexdale SNAP's community engagement process began in 2020, at the height of the COVID-19 pandemic, a period during which Rexdale was among the hardest-hit communities in Toronto (TRCA, 2023). This timing is significant. The pandemic both underscored the depth of the community's vulnerability and severely constrained the forms of engagement that were feasible: in-person consultations, door-to-door outreach, and community gatherings were largely impossible, shifting engagement to digital platforms and phone consultations that are structurally less accessible to residents with limited English proficiency, unreliable internet access, or limited digital literacy. The SNAP documents acknowledge this challenge but do not specify how it was addressed or how representativeness was assessed in the engagement process (TRCA, 2023).

The primary site of community engagement in the Rexdale SNAP has been the Rexdale Community Hub, a well-established local organization with deep roots in the neighbourhood. Centering engagement at the Community Hub is a meaningful choice: it prioritizes an organization with existing trust and relationships in the community over institutional or municipal venues. At the same time, it raises questions about reach. The Rexdale Community Hub primarily serves residents who are already engaged

with its programming, which may not represent the most marginalized members of the community: tower residents with minimal organizational connections, recent arrivals with limited English, or residents whose distrust of institutional processes extends to community organizations closely associated with government-funded programs.

The SNAP's engagement materials present participation in largely procedural terms: residents were consulted, feedback was collected, and priorities were incorporated into the Action Plan. What is largely absent from these documents is any critical account of how feedback shaped the program's design, or of instances where community input challenged or redirected institutional priorities. This silence is itself analytically significant. Wamsler et al. (2020) and Caitana and Moniz (2024) have shown that planning engagement in NbS contexts frequently operates as an "invited space" that validates rather than challenges the parameters set by institutional actors. The TRCA and City of Toronto came to engagement processes with a defined program model, established funding commitments, and pre-selected intervention types. Community feedback could influence the details of implementation, but the structural parameters of the SNAP (its ecological focus, its corridor-based spatial logic, its institutional leadership) were not meaningfully negotiable.

The document analysis also reveals a gap in the representation of multilingual and multicultural community voices. The SNAP study area is home to significant Somali, Arabic, Punjabi, Tamil, and Urdu-speaking populations, among others (TRCA, 2023). The engagement materials reviewed for this study are produced exclusively in English. There is no indication in the Action Plan Report of multilingual outreach, interpretation services at consultation events, or strategies for reaching community members who do not engage with English-language planning processes. This gap is not incidental: it reflects a broader pattern in which participation is structurally configured around the capacities and communication norms of the planning institution rather than those of the community it purports to serve (Puskás et al., 2021).

3.4 Equity Impacts and Missed Opportunities

The equity impacts of the Rexdale SNAP are complex and uneven. On the positive side, the program has directed genuine investment into a community that has historically been underserved by public green space and environmental infrastructure, and it has done so with more explicit attention to vulnerability than most comparable programs in the Canadian context. The tree canopy expansion and open-space revitalization at Rowntree Mills Park improve the ecological conditions of the neighbourhood's most significant green space and offer meaningful recreational and health co-benefits for residents who can access it. The TRCA's circular economy initiatives and green economy programming offer at least the prospect of local economic opportunity for residents with limited labour market access.

At the same time, the SNAP's equity gaps are substantial. The program's residential component, which includes energy efficiency retrofits and sustainability upgrades for private dwellings, is most readily accessible to homeowners. Low-income renters, who represent a significant proportion of Rexdale's population given the neighbourhood's high concentration of rental towers, are structurally dependent on their landlords to participate in retrofit programs, and face well-documented barriers to accessing energy efficiency benefits even where programs exist (TRCA, 2023; Toronto Academic Health Science Network, 2023). The SNAP does not contain a targeted strategy for reaching tenants in rental housing, and it does not articulate mechanisms to prevent retrofit investments from being passed through to tenants in the form of rent increases.

The absence of anti-displacement policy integration represents perhaps the most significant missed opportunity in the Rexdale SNAP's current framework. The combination of ecological improvement, transit investment through the Finch West LRT, and the neighbourhood's relative affordability creates textbook conditions for the green gentrification dynamic documented extensively in the literature (Anguelovski and Corbera, 2023; Gould and Lewis, 2017; Cousins, 2021). Yet the SNAP Action Plan Report does not mention displacement, housing affordability, or tenant protection, and it does not signal any coordination with the City of Toronto's housing policy tools. The absence of this conversation from the planning documents is not a neutral omission: it reflects the institutional boundary conditions within which the TRCA operates and the limits of a conservation authority-led model for delivering socially integrated neighbourhood planning.

There are also missed opportunities in outcome monitoring. The SNAP identifies success metrics primarily in ecological and programmatic terms: tree canopy coverage increases, stormwater volumes managed, energy retrofits completed. Social equity outcomes, such as changes in residents' access to and use of green spaces, displacement rates, rent levels, or self-reported wellbeing among marginalized groups, are not systematically tracked. Without this data, it is not possible to assess whether the SNAP is delivering on its equity commitments, and accountability for equity outcomes remains aspirational rather than evidence-based.

3.5 Comparative Notes: Other SNAPS

The TRCA administers SNAP programs in several Greater Toronto Area communities, including Weston, Black Creek, and Highland Creek, among others. Placing the Rexdale SNAP in this comparative context reveals important patterns about how the SNAP model handles equity across different neighbourhood conditions.

Table 3 Critical Discourse Analysis Findings by Equity Dimension

Equity Dimension	Stated Commitment in SNAP Documents	Observed Gap or Limitation	Key Textual Evidence
Distributional equity	SNAP frames NbS as universally accessible community improvements benefiting all Rexdale residents	Benefits concentrate along major arterial corridors and TRCA-owned land; tower clusters with highest vulnerability scores receive fewer interventions	Language of "community greening" obscures spatial unevenness in where interventions are located (TRCA, 2021, pp. 12-18)
Procedural equity	SNAP references community engagement as a foundational principle and cites partner consultations throughout planning documents	Engagement processes are described retrospectively and in general terms; no documentation of how community input altered specific intervention decisions	Participation is framed as informing rather than co-producing the plan; decision-making authority remains with TRCA and City staff (TRCA, 2021, p. 6)
Recognition equity	SNAP acknowledges Rexdale as a "priority neighbourhood" with historical disinvestment and diverse population	Racialized and Indigenous residents are grouped under generic "vulnerable population" language; no acknowledgement of differential exposure to environmental harm by race or immigration status	Equity language defaults to income and housing tenure; race is not named as a determinant of NbS access (TRCA, 2021; City of Toronto, 2014)
Spatial justice	SNAP identifies environmental improvements as addressing neighbourhood inequality	Finch West LRT corridor is treated as an opportunity for greening without acknowledging its role as a green gentrification catalyst	Transit-adjacent NbS investment is presented as benefit without anti-displacement analysis (TRCA, 2023)
Technocratic framing	SNAP presents NbS as evidence-based, technically optimized solutions to environmental challenges	Technical language (carbon sequestration targets, stormwater coefficients, canopy cover percentages) positions NbS as neutral and scientific, depoliticizing decisions about where to invest and who benefits	Ecological metrics dominate the plan; social and equity metrics appear only in supplementary sections (TRCA, 2021, 2023)

The SNAP communities share a basic governance model and program logic: multi-actor partnerships, ecological restoration anchored to a watercourse or natural corridor, and community benefit programming layered onto ecological investments. What varies significantly is the socio-demographic context and the degree to which equity considerations are operationalized differently across sites. Rexdale is among the most socio-economically marginalized communities in the SNAP portfolio, with the highest concentrations of recent immigrants, racialized residents, and families in core housing need. The equity challenges in Rexdale are therefore more acute and more consequential than in SNAP communities serving more affluent or less racially diverse populations.

The comparative analysis suggests that the SNAP model as currently designed applies a relatively standardized governance and engagement template across communities with significantly different equity conditions. A program that may be adequate for a moderately diverse community with mixed housing tenure and reasonable civic infrastructure may be substantially inadequate for a community like Rexdale, where the structural barriers to participation, the risks of displacement, and the degree of historical underinvestment all demand a more intensive and more explicitly equity-focused approach. The lesson from the comparative notes is not that the SNAP model should be abandoned, but that equity-responsive NbS governance requires differentiated approaches calibrated to the specific conditions and vulnerabilities of each community, rather than a uniform model applied across the portfolio.

Chapter 4: Conclusion

4.1 Summary of Key Insights

This study set out to answer a specific question: to what extent do nature-based solutions implemented through the Rexdale Sustainable Neighbourhood Action Plan address long-term environmental equity? The Rexdale SNAP represents genuine institutional progress toward equity-oriented NbS governance in the Canadian context, and it directs meaningful investment into a community that has been systematically excluded from the circuits of green infrastructure investment that have shaped other parts of Toronto. At the same time, the research reveals significant and structurally produced gaps between the program's equity commitments and its distributional outcomes, gaps rooted in deeper tensions in the governance model rather than incidental failures of implementation, and the policy frameworks within which the SNAP operates.

The spatial analysis confirms what the theoretical framework anticipated: NbS investments in the Rexdale SNAP are concentrated along the Humber River corridor and in the park-adjacent dissemination

areas best suited to ecological restoration, while the highest-vulnerability residential zones, those defined by the convergence of low income, high renter concentration, elevated racialized demographics, and severe tree canopy deficiency, receive comparatively little direct investment. The tower-dense clusters along Dixon Road, Kipling Avenue, and the Rexdale Boulevard corridor consistently are in the highest-need, yet these are not the areas where NbS interventions are most dense. The average tree canopy coverage in high-vulnerability dissemination areas (DAs) (the smallest geographic unit used in Statistics Canada's census data) is lower, a disparity that reflects decades of differential investment documented through the historical analysis and confirmed in the current spatial data. Most multi-unit residential buildings (MURBs) tower clusters in the study area fall outside the standard 800-metre walkability threshold from Rowntree Mills Park, meaning the primary beneficiaries of the park's ecological improvement are not the residents most in need of green space access.

The discourse analysis reveals that these spatial outcomes are not accidental. The planning narratives that structure the SNAP position equity as a co-benefit of ecological investment rather than as the primary organizing goal. The program's language is genuinely aspirational about community benefit, but it does not translate those aspirations into auditable commitments, measurable social targets, or enforceable accountability mechanisms. The TRCA's governance structure, rooted in a conservation authority mandate oriented toward watershed management rather than social equity, produces a program that is technically sophisticated in its ecological dimensions and comparatively underdeveloped in its social ones. The layered policy context, in which TransformTO, the Provincial Policy Statement, and the Conservation Authorities Act all shape what the SNAP can do, and creates a fragmented accountability structure in which no single institution is clearly responsible for ensuring that equity outcomes are achieved.

The historical analysis establishes that these patterns are not new. The green space deficit that the Rexdale SNAP is now addressing was produced over decades by planning decisions that systematically directed parkland investment, street tree programs, and ecological infrastructure toward wealthier communities. Rexdale's residents have been living with the consequences of those decisions for a generation. The SNAP's ecological investments are necessary, but they are not, on their own, sufficient to reverse a structural inequality of this depth and duration.

The green gentrification risk analysis adds urgency to this conclusion. The combination of ecological improvement, transit investment through the Finch West LRT, and Rexdale's relative affordability produces textbook conditions for displacement. The dissemination areas at highest risk, those

with high renter concentration, proximity to both LRT stations and park improvements, and no ownership stake with which to capture the benefits of neighbourhood upgrading, are precisely the areas whose current residents have already endured the costs of historical underinvestment. The absence of anti-displacement safeguards from the SNAP's current framework means that the community most likely to be displaced by the program's success is the same community the program claims to serve.

4.2 Reflections on Governance, Planning, and Justice

These findings carry broader implications for how equity is understood and operationalized in NbS governance, implications that extend beyond the Rexdale case to the design of NbS programs in similarly positioned communities across the Global North.

The first implication concerns the limits of co-benefit framing. When equity is positioned as a co-benefit of ecological investment, it becomes structurally subordinate to ecological objectives, fundable only when and where ecological priorities allow, measurable only in terms the ecological institution already knows how to measure, and accountable only through mechanisms the ecological institution already has. The win-win narrative that dominates NbS discourse internationally is not simply an analytical error; it is a political choice that determines whose interests are centered and whose are contingent (Cousins, 2021; Kotsila et al., 2021). Genuine equity in NbS governance requires reversing this logic, treating social justice as the organizing goal and ecological restoration as one instrument among several for achieving it, rather than the other way around.

The second implication concerns governance architecture. The TRCA-led SNAP model demonstrates both the potential and the limits of using a conservation authority as the institutional vehicle for neighbourhood equity programming. The TRCA brings technical expertise, watershed-scale perspective, and multi-municipal relationships that no single city department could replicate. But it does not bring housing policy tools, income support capacity, or democratic accountability to neighbourhood residents. Addressing this structural gap requires not simply adding equity staff within the TRCA, but building genuine institutional partnerships with the City's equity, housing, and social development functions, partnerships with shared decision-making authority, shared accountability, and shared metrics. The current model of parallel programs, in which the TRCA leads ecological programming while the City runs separate equity and housing initiatives without explicit integration, is insufficient for addressing the kind of layered, cross-sectoral inequality that characterizes Rexdale's conditions.

The third implication concerns the relationship between historical justice and current planning. Urban political ecology holds that neighbourhood ecological conditions are produced by political and economic processes, ones that can be named, traced, and held accountable. (Swyngedouw, 2006; Heynen, Kaika, and Swyngedouw, 2006). Planning practice in Canada has been slow to integrate this insight into program design. The Rexdale SNAP acknowledges historical underinvestment in its framing but does not build a reparative logic into its investment decisions: there is no mechanism for directing greater investment in the communities most harmed by historical underinvestment. A genuinely equity-oriented NbS program would do so explicitly, treating historical redress as a legitimate planning objective rather than simply a rhetorical context.

4.3 Policy and Planning Recommendations

The following recommendations are directed toward the TRCA, the City of Toronto, and the provincial government, as the three institutional actors with the most direct influence over NbS planning in Rexdale and comparable communities.

Table 4 Policy Recommendations for Equity-Centred NbS Planning in Priority Neighbourhoods

Recommendation	Equity Dimension	Responsible Actor(s)	Priority
Adopt mandatory anti-displacement impact assessments for all NbS projects located within 800 m of transit infrastructure, requiring analysis of rental market effects before approval	Distributional; spatial justice	City of Toronto Planning; TRCA	High
Establish community benefits agreements (CBAs) for all SNAP-funded NbS projects, guaranteeing local hiring, accessible green space, and tenant protections for MURB residents	Distributional; procedural	City of Toronto; TRCA; Rexdale community organizations	High
Replace retrospective engagement with co-design processes in which community members hold voting or veto power over at least one design element per intervention site	Procedural	TRCA; City of Toronto Community Development	High
Develop a race-disaggregated equity monitoring framework that tracks NbS access, participation rates, and health outcomes by race, immigration status, and tenure, reported annually	Recognition; distributional	City of Toronto; Statistics Canada data partnership	Medium
Integrate Indigenous land stewardship protocols into SNAP site assessments and restoration planning, with formal involvement of relevant First Nations and urban Indigenous organizations	Recognition	TRCA; City of Toronto Indigenous Affairs	High

For the TRCA, the most immediate priority is to extend NbS investment beyond the ecological corridor and into the residential zones of highest vulnerability. This means designing interventions, such as pocket parks, residential tree plantings, community food gardens, and bioswale infrastructure, that are located within and adjacent to the tower clusters along Dixon Road and the Rexdale Boulevard corridor, bringing green infrastructure easily accessible to residents rather than requiring residents to travel to the infrastructure. The TRCA should also publish the full methodology and indicator weighting of the NBCS Siting Tool, including the relative weight assigned to social versus ecological indicators, making it possible for community organizations and independent researchers to audit whether social vulnerability is genuinely driving investment location.

For the City of Toronto, the focus should be on integration of anti-displacement policy tools into the SNAP governance framework before the Finch West LRT becomes operational. This should include a community benefit agreement requiring that a proportion of LRT-adjacent rental units remain affordable for existing residents, and designation of the SNAP study area as a priority zone for the City's Multiplex Homes and Affordable Housing programs. The City should also mandate that all SNAP programs operating in low-income, high-renter communities produce annual equity impact reports tracking displacement indicators, rental price trends, and changes in community demographics alongside ecological outcome metrics.

Finally, the provincial government should review the *Conservation Authorities Act* with a view to clarifying and expanding the mandate of conservation authorities to include social equity outcomes as explicit program objectives, rather than leaving equity integration dependent on funding program requirements and individual institutional discretion. This would provide the legal foundation for a more robust and accountable form of equity-oriented NbS governance than is currently possible within the TRCA's existing mandate.

4.4 Suggestions for Future Research

This study opens several lines of inquiry that exceed its current scope and should be taken up in future research.

The most pressing need is for long-term monitoring of displacement and demographic change in the Rexdale SNAP study area, beginning before the Finch West LRT opened, and continuing for at least a decade afterward. The green gentrification risk identified in this research is predictive, not observed; future studies should track whether the predicted displacement dynamic materializes and assess the role of SNAP investments in its trajectory.

Future research should also incorporate the perspectives of Rexdale residents directly, through sustained, community-grounded qualitative methods that this study's scope did not allow. The lived experience of residents, particularly tower dwellers, recent immigrants, and those with limited English proficiency, is irreplaceable data for understanding whether NbS programs are genuinely improving conditions for those most in need, and for identifying the dimensions of equity that neither spatial analysis nor document review can capture.

A comparative study across the full portfolio of TRCA SNAP communities would also be valuable, assessing whether and how the program's governance and investment logic produces different equity outcomes in communities with different socio-demographic profiles and different ecological conditions. Such a study could establish whether the equity gaps identified in Rexdale are specific to its conditions or are structural features of the SNAP model across all its implementations.

Finally, this research has noted the absence of Indigenous perspectives from the Rexdale SNAP's governance and planning framework without being able to fully analyze that absence within its current scope. The Humber River watershed is Haudenosaunee, Anishinaabe, and Huron-Wendat territory, and the ecological restoration of the Humber corridor raises questions about Indigenous land governance, sovereignty, and knowledge that the SNAP documents do not address. Future research that engages meaningfully with Indigenous planning frameworks and the principles of Free, Prior and Informed Consent would make an important contribution to understanding what genuine environmental justice requires in this context, following the arguments advanced by Reed et al. (2024) and Rees and Doyon (2023).

Nature-based solutions have potential to contribute to more equitable and resilient cities. But realizing that potential requires confronting the political and historical conditions that produced urban environmental inequality in the first place, building governance structures with real accountability for social outcomes, and placing the communities most harmed by historical underinvestment at the centre of planning processes rather than at their margins. The Rexdale SNAP has made a start. Making it a model of genuine environmental equity requires going further.

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Appendices

Appendix A: Site Photos



Figure 6 MURBs visible from Rowntree Mills Park



Figure 7 MURBs visible from Rowntree Mills Park



Figure 8 COVID-19 Memorial Community garden maintenance following a guided nature walk through Rowntree Mills Park organized by the Rexdale SNAP team at TRCA.



Figure 9 New tree plantings at Rowntree Mills Park as part of the Rexdale SNAP.



Figure 10 Encapsulating the diverse flora and fauna, the Humber River, and lively ecosystem of Rowntree Mills Park as a whole.



Figure 11 The COVID-19 Memorial Garden, in honour of the essential workers, family and friends lost during the pandemic which had a devastating impact on the community. It is a product of the resident's input during early consultation and their ongoing care.